

SOME —————
COMMON BIRDS



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P. M. SILLOWAY.

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Division of Birds

William L. Finley,

New York

Dec. 1906.



HEAD OF TURKEY VULTURE.

From life. After Shufeldt.

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Birds

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SKETCHES

William L. Finley.

OF

SOME COMMON BIRDS

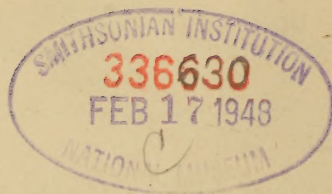
Finley
Finley
BY
P. M. SILLOWAY

CINCINNATI, OHIO
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Sketches of Some Common Birds.

I.—MEADOW MUSICIANS.

"Now the meadows are blooming with flowers of various colors,
And with untaught throats carol the garrulous birds."

—LONGFELLOW.

Who that is not physically incapacitated has not enjoyed the luxury of walking across meadows and fields, when nature was displaying the unfolding charms and budding graces of spring? Such excursions are healthful, and can be made profitable as opportunities for studying various forms of life. Early in the spring the yellow heads of the dandelions beseech us at frequent intervals not to crush out their fleeting beauty, and as we gaze over some portions of the meadows we imagine that we are treading the veritable Field of the Cloth of Gold—that gold which

"Is the Spring's largess, which she scatters now
To rich and poor alike, with lavish hand."

At a safe distance ahead of us the striped ground-squirrel sits erect saucily to survey us before whisking into his many-tunneled burrow, and when we have passed his retreat he emerges to whistle shrilly, as though deriding our apparent inability to injure him.

The birds also frequently claim the attention of the lover of nature, for in the open country we shall meet species interesting and handsome. The successful student of bird-life, however, should begin his walks abroad very early in the spring, even before the season's alchemy has transmuted the baser brown of the dead vegetation into

the green and yellow of the dandelions and buttercups. Indeed, he will be well compensated if he is afield even before the snows of February and March have disappeared. Each month has its characteristic birds, and the species most abundant and prominent in the earlier season are more easily studied because of the absence of others whose presence might distract the attention of the bird-gazer.

PRAIRIE HORNED LARK.

The first genial days of February or early March invite us to walk beyond the limits of the village or city, for we hope that the bright sunshine may encourage voice and activity among the birds. Along a road between meadows we continue our ramble, and soon the familiar song of a bird is wafted to our ears, a song possessing a charm for us not recognized in the performances of musicians of the later season. Climbing the fence and entering the meadow, which has patches of snow yet lingering in the depressions and lower areas, we scan the ground to discover the cheery songster. We have recognized the notes as those of the prairie horned lark, the only real lark belonging to the avi-fauna of this section. The so-called meadow lark is more properly a starling, and is therefore not a member of the family *Alaudidæ*, to which the horned lark belongs. The notes of the horned lark have a very misleading effect, and as Lowell wrote of another avian friend,

"Far distant sounds the hidden chickadee
Close at my side,"

so the horned lark sounds far distant when it is really quite close. At times the notes seem to come from a point far in advance of us, and at other times to arise from the ground nearer us. They form a queer, lisping song, beginning with two or three syllables uttered slowly, and ending with a series of hurried, blending notes in ascending

pitch. For a time we fail to perceive the hardy musician, until a slight movement on a bare knoll in advance of us arrests our wandering glances, and there we see the author of the ventriloquial song to which we have been listening. Having the bird in sight, we can understand why we were so long in discovering it, and why we overlooked it so easily, for the blending colors of its lilac and grayish brown plumage harmonize so closely with the dead vegetation of the pastures that the bird is difficult to discover by one not acquainted with it. Its upper parts are grayish brown, lightly spotted with darker; the upper parts of its head and the sides of its neck and breast are a beautiful vinaceous color, all forming a close mimicry of the ground on which it spends the greater part of its time when it is not on the wing.

These birds are equally difficult to perceive in the air or on the ground. When flying, they frequently give utterance to far-borne notes, which at times seem to issue from a point close at hand, and again the birds are apparently within a few rods of the listener when they are really overhead skirting the field of vision. Frequently when they are feeding they utter their twittering notes in a soft, far-away tone, which misleads the hearer in estimating their distance. I have watched birds feeding near me, and when they uttered those deceptive notes, with no visible air of delivery and without raising their heads from the vegetation in which they were picking at the rootlets, I have been led to scan the ground farther away to find the other birds that I imagined were attracting my attention. At other times when I have strolled along the border of a meadow, the notes of the prairie horned larks have come to my ear, and I have searched the field of vision to discover the authors. Presently a slight movement on the ground a few feet away would attract my eye, and the larks could be seen feeding or running about, their admirable mimicry of the dried herbage having protected them from observation until their movements betrayed their presence. In our excursions over meadow and field in early spring, we can see the larks feeding on the knolls that are bare of snow, now running prettily ahead for a yard or more, then stopping to glean

among the roots of the dried grass, again to run forward a few feet, and again stopping to feed among the rootlets. I have frequently seen a horned lark run nimbly for many feet over the naked ground and pick up morsels of food, such as fallen seeds and grain, without stopping in its course, a power I have seen exercised by no other bird.

The story of the horned larks should begin with the time when autumn silences the voices of many of our summer friends and the chill north wind drives to southern lands hosts of the birds whose manners endeared them to us in the departed season. Then the well-known notes, almost unheard in the late summer months, are wafted to our ears on some bright morning in early October, and we search the blue dome to discover the forms of the larks as they flit in irregular, undulating movement high over the meadows. Sometimes alone, generally in groups of two or three, frequently in flocks of ten to twenty, and occasionally by hundreds, they pass to and fro, heralding their progress by their frequent twittering, usually flying high until they dart down suddenly to alight in meadow, ploughed field, or feed-yards which lure them with the scattered grain.

Though a few of these birds remain among us in Central Illinois during the summer months, many of them retire northward with the melting snow, and others after their broods are reared, to return in the regular fall migration. For a few days subsequent to their autumnal appearance they are very restless, taking wing soon after alighting, but gradually discovering more familiarity and boldness. The newly-sown wheatlands, thinly covered with the short green blades, allure the uneasy visitors, and many alight to feed in such fields, generally advancing over the area in comparatively close order, and taking flight on reaching a fence or hedge. The evident preference of these larks for fields of young wheat has suggested for the species the local name of "wheatbird." Pastures in which cattle and hogs are being fattened for market are favorite resorts for the larks, as the refuse grain constitutes a large part of their food. Late in the winter, when the wheatfields are blanketed with snow, the larks may be found congregating along warm southern

slopes, roadsides, and neglected spots where seed-bearing weeds are standing above the snow. Gravelly regions and sandy flats and ridges are visited by them at convenient seasons, as such places furnish them materials which assist them to masticate their food.

Do not imagine that these vivacious creatures never discover any inclination to visit the villages and towns. Their charming notes can be heard in the villages as the birds, usually in small scattered groups, fly over in passing from one locality to another. During severe winter weather a little company of these birds will sometimes enter the larger villages or the suburbs of cities, and sojourn in the streets of a certain quarter to glean their living from the refuse of the highways. At such times they are quite fearless, and will only reluctantly give place to passing vehicles, often flying ahead of the horses for a short distance and alighting, and flying back toward the place from which they were first driven when again disturbed. In the road they can be observed with advantage and they are easily identified, for the colors of the mourning dove largely predominate in their plumage, and the little tuft of black feathers projecting backward over the ear validates their claim to the title of horned larks.

My first knowledge of the fact that the horned larks occasionally visit the towns was acquired one night of a recent winter, when I walked to the public square of my home village about seven o'clock in a swirl of snow, the storm having raged since noon. I fancied that I frequently heard the notes of the larks, and inferred that the birds were flying from the lash of the driven flakes. When I drew near the more brightly-lighted portion of the village, however, I could catch occasional glimpses of the forms of the birds, and I discovered that they were flitting above the electric lights and were reveling in the light and warmth of the town as blithely as though they were in the breath and brilliance of a spring morning. Wise creatures, thought I, who prefer the air tempered by the draughts from the chimneys of the scattered houses to their nooks in ravines and sheltered weed patches. Through the long evening I watched them, and even when I retired after nine o'clock they were still flitting

to and fro in the snow-laden gloom, uttering their single "tseep," and I wondered at their powers of flight and their indifference to the "whirl-dance of the blinding storm."

After the breaking of winter on any of those warm, captivating days whose brightness is suggestive of venturesome bluebirds and hardy robins, and whose influence causes the bird-lover unconsciously to gravitate toward the fields long untenanted by the forms of summer, the nuptial song of the horned lark arises from the exposed ground or floats down to our ears from aerial regions. Truly it is a most welcome ditty, this first bird-song of the young year, and at this season it is sympathetic and expressive, telling of more genial breezes and bluer skies, picturing green meadows and livelier landscapes. It is not unlike the song of the meadow lark, though much weaker and less musical, forming a sweet, pleasing twitter worthy of a less dreary setting. This early song is the harbinger of the mating season, and thereafter the birds congregate less frequently, soon pairing and choosing sites for their lowly habitations.

With the advance of the season, the males become more vivacious, and frequently they alight on the top of a fence, wall, or stake, there to sit and repeat their madrigals to their lady-loves on the ground below. While rambling over the meadows or strolling along the country lanes in April the bird-seeker will recognize the notes of the lark seeming to come from nowhere in particular, and he will scan the ground and surrounding landscape to discover the songster. Soon he may perceive the form of the bird as it mounts into the air by a succession of irregular, stair-like flights, until it reaches a height almost to the limit of his range of vision. There it floats in the flood of light, rising a few yards with fluttering pinions and then falling about the same distance with expanded wings and outspread tail, lisping its short ditty while it sinks. Again it ascends in short, irregular curves, and again it sinks singing as before, our real American skylark,

"For with a lark's heart he doth tower,
By a glorious upward instinct drawn."

It will thus sustain itself in the higher regions for many minutes, and even hours, rising and then sinking with song on its lips, and at times work its way gradually over the underlying area for more than a mile, until suddenly an impulse directs it, and with closed wings it drops head-foremost with the velocity of a falling arrow. Straight toward the earth it drops unresistingly, until we imagine that it will surely dash itself against the ground, when it quickly spreads its wings and turns abruptly in a horizontal course, flying in a gently undulating manner where its fancy leads, usually stopping at the side of its mate. I know of nothing more thrilling in the habits of our inland birds than this fearless leap of the horned lark from a height of many hundreds of feet directly to the surface below.

It has been said that these birds rarely alight elsewhere than on the ground. This feature of their habits has led the boys of the farm to style them "groundbirds." In the fall I have seen small flocks of five or six alight upon the telegraph wires along a railroad near a pond, to which they were resorting for water. There they would sit and utter their lisping twitter, one or two occasionally taking a short turn around the pond; after their return others would imitate their actions, somewhat like swallows in late summer. In winter I have seen them perched on the higher edge of the sloping roof of a feed-shed, where the yard below furnished them a desirable supply of scattered grain and other refuse matter.

Nidification with these hardy larks begins early, the melting of the snow in February and March disclosing to them suitable nesting sites. The early nests are usually situated in hollows along the sheltered sides of shallow, open ravines, knolls, and hillsides, preferably along southern slopes open to agreeable sunshine. Later nests are oftener found in more open situations in pastures and corn-fields. The site is commonly a slight depression, sometimes beside a tuft of grass or a projecting clod. The materials used in a nest are dried grass and root fibers, and it is sometimes lined with thistledown. The eggs are grayish or light green in color, marked irregularly with various shades of brown. The number in a set varies from three

to five. The eggs average .85 by .62 of an inch in length and breadth. Second broods are often reared in this section, and hence the breeding season is frequently prolonged from the middle of March to the end of June.

After the arrival of the mating season the birds are seen either singly or in solitary pairs. This association of the birds in pairs is most noticeable in February and March. The larks seek their living chiefly in the roads at this time, and their familiarity with man is akin to the fearlessness with which they regard the approach of a vehicle. Sometimes they step aside to give place to it without taking flight, and often they are so close that they can be reached with the driver's whip. When they fly upon being disturbed, they remain together and otherwise manifest all the devotion of a pair of young lovers.

The food habits of the horned larks have been partially investigated by the U. S. Department of Agriculture, and a paper upon the subject was published in the Report of the Secretary of Agriculture, 1892. From the paper we conclude that the birds are highly beneficial, though they had been suspected of causing some damage in the wheat-fields. The author of the paper, Prof. Walter B. Barrows, states that from the evidence at hand he is not warranted in believing that horned larks do any appreciable damage to grain crops. They may pick up some lately sown grain or grass seed which has been left uncovered, but the loss thus caused must be trifling. Their evident services in the consumption of the seeds of such pests as pigweed, bitterweed, amaranth, sorrel, pigeon grass or foxtail, bindweed, knotweed, smartweed, and other weeds of similar character, certainly more than compensate for the trivial damage they may be suspected of causing, and hence they are entitled to the respect and protection of every agriculturist.

The prairie horned lark ranges throughout the upper Mississippi Valley and the region about the Great Lakes, tending northward and eastward. Eastern Iowa seems to be the center of its western distribution, and Northwestern New York is probably the center of its eastern distribution.



MEADOW LARK.

From life. After Shufeldt.

MEADOW LARK.

The warmer breezes and brighter sunshine of April daily add to the wealth of color in the landscape, and also evoke the best performances of the meadow musicians, among whom the loud, mellow piping of the meadow lark proclaims its leadership in the meadow chorus for April. Scattering its melody over our open districts, the only well-known bird that sings from the ground as well as from higher situations, the meadow lark is truly typical of the great prairies which it has doubtless frequented since the advent of civilization. It inhabits the eastern United States and British Provinces, its northern limit being from fifty-three to fifty-four north latitude. Its western limit is the edge of the Great Plains. It winters from the Middle States southward, perhaps regularly south of the thirty-eighth or thirty-seventh parallel. Occasional winter residents are reported in localities north of the given limits.

Before the winter-browned carpet of the meadows, which form an excellent mimicry of the plumage of its upper parts, has been brightened into green by the renovating touches of spring, before the yellow rays of the dandelion unfold in rivalry of the rich yellow upon its breast, the meadow lark appears in our fields and pastures, opening the season with its familiar song. In this locality it is among the first of the songsters which herald the advent of spring by their presence and melody. Not many days do the robin and bluebird precede it, nor are its rich notes less familiar to ordinary ears than are those of the two species mentioned. It usually enters our latitude in the night, and announces its arrival in the morning from the ground, from hedgerows, telegraph wires, fences, and even from trees and houses in villages and rural neighborhoods. During the first two weeks of April, the fields are resonant with the melody of the meadow lark. Though essentially a bird of the rural districts, at this season it occasionally enters the towns and villages, and sings with delightful familiarity from the tops of tall trees and other convenient situations.

The meadow larks utter their notes when on the ground or on the wing, usually either at the beginning or ending of their short flights. Crouching or walking on the ground, at our approach they crouch more closely to the earth for a moment before springing into the air, scolding us in a loud and rather harsh note for disturbing them. Taking wing and still scolding as they advance, their manner of flight attracts our attention. They fly rapidly by flapping the wings for some distance, and then sailing forward a few yards with expanded pinions; these alternate motions are repeated, the outspread tail forming a conspicuous feature, since the outer feathers are white and show prominently in flight. They fly somewhat like the bob-white, in a steady, straight-away course, though their flight is less swift and more regular than that of the quail.

The song of the meadow lark, though simple and unvaried to a great extent, is clear, ringing, and rich in its mellow fullness, yet containing an element of plaintiveness quite perceptible to the sympathetic mind. In some localities the song is interpreted by the words, "Laziness will kill you." Residents of other country districts hear it in the children's challenge, "Peek, you can't see me." In both the foregoing renderings the syllable preceding the last receives the emphasis. These combinations express merely the quantity of the song, failing as do all attempts to aid the mind in forming an adequate conception of the quality and execution. A common note of the meadow lark is a loud, indrawn whistle uttered in a mournful key, sometimes following the harsh, stridulating tones it uses in scolding, and frequently repeated from the top of a small hedge, tree, or other favorite perch. This plaintive whistle is sweetly expressive, and the minor element is more prominent in it than in any other utterances of the meadow lark. Like many other birds, the meadow lark has a song it reserves for occasions of inordinate ecstasy, a song that is executed by the male and only while in the air. Soon after rising from the ground, or after flying some distance, it repeats in a hurried, ecstatic manner a jumble of all its notes, beginning with the stridulating call. The whole performance indi-

icates a veritable overflow of spirits, and is accompanied by aimless soaring and sailing in both curves and straight lines, sometimes upward and then obliquely downward, a medley of chattering, fluttering, and sailing.

It seems to me that the melodious piping of the meadow lark can be best heard and most appreciated by the bird lover during a short ramble in the meadow about sunset of any perfect day in middle April. Other musicians in nature's choir are then chanting their vespers from hedgerow, tree, or the open ground. The good-night ditty of the song sparrow arises from the summit of an adjacent brush-heap, the clear warbling of the blue-bird is wafted to our ears, the faithful sunset carols and interlarded squeaks of a robin come down to us from his perch in the top of a tall elm, while from nearer sources we recognize the twittering songs of the horned larks and the tender voice of the mourning doves. Out in a convenient meadow, however, we remark the prominence of the meadow larks in the oratorio to the waning day; for here and there we note their presence as we are charmed with their mellow plaints and their ringing expressions of eloquent sympathy. The sun has passed beyond the limit of golden yellow light, and the blue of the East has taken on a rapidly darkening hue. The voices of the fading day become so few that each performance has acquired greater prominence and interest, and now the vibrant whistles, and rich, melodious phrases of the meadow larks seem to become richer and more vibrant, even as they are fewer and farther away. Through the period of gathering dusk we linger, held by the sweetness and charm of these bird voices of the night, and not until the purple darkness of the East has finally veiled the trailing glory of the West do the last good-night whistles and songs die away on our ears, and we finally turn our steps homeward.

The meadow larks do not prepare to rear their broods until the south winds have dried the hollows of the meadows, and the grass tufts have begun to show among the verdant areas. The honeymoon occupies the early part of April, and happy scenes of courtship engage the hours of the animated creatures. However, many of the

larks seem to be mated when they arrive in the spring, and their love affairs seem scarcely less numerous in the fall than in the vernal season. On their migration, they travel quite frequently in couples, though solitary birds and trios are common; and hence I have concluded that many of these birds have a courting and mating season in the fall after the summer moult. In their gallantries the harsh, scolding note elsewhere referred to is particularly emphatic, and is uttered by the birds on all occasions, notably when one bird is in pursuit of another.

The meadow lark nests on the ground in dry fields and meadows. The nest is commonly made in a slight depression at the base of a tuft of grass, which may serve as a partial roof for the habitation. The nest itself is a snug structure of dried grass. Nidification begins in the latter part of April, and generally more than one brood is reared. The eggs vary in number from four to six, though complements of seven have been reported. They are pure white, speckled and blotched with reddish and purplish brown. An average egg measures 1.10 long by .80 wide, in inches. One bright morning in the latter part of April I found two nests of the meadow lark in a hayfield containing many depressions made by the feet of horses and cattle in wet weather. They were situated beside tufts of green grass, which helped to form the partial domes sheltering the grassy sitting-rooms. They were formed externally of coarse grass into cavities about four inches in diameter. The lining was fine dried grass, and both nests were so artfully sheltered that only by looking directly into the entrance could the bird-seeker discover the cozy homes. Once I found a nest of the meadow lark in a road, not more than ten feet from the wagon track, in an alluring tuft of grass. The meadow lark seems to be fond of the meadows and unbroken areas in the suburbs of towns and villages, frequently nesting within a few steps of the houses in suburban districts, and always singing within sound of such outlying homes.

About the 1st of August the meadow larks become silent and more retiring in their habits, losing much of their former animation and familiarity. In our early August rambles over the meadows we frequently miss the

forms and voices of the meadow larks for whole days. It seems that they hide closely in the grass tufts and other convenient shelters, silent in the great midsummer transition which so sensibly affects the voices of the birds. When disturbed in their seclusion they rise silently and flutter away for a distance to drop into their coverts. From the middle of August they are gregarious, ten to fifty individuals associating in a meadow, where they feed on the grasshoppers abundant at that time. Through September and October they are loudly melodious for about two hours after sunrise, reminding the listener of the first mornings after their coming in spring. They mate frequently at this season, and in their persistent gallantry one individual can be observed pursuing another in rapid flight, the leader dodging upward and sidewise in a manner quite foreign to the ordinary deportment of these staid birds, until both dart suddenly into the grass, or one disappears in the herbage and the other flies to a perch on the hedge or fence. About the 1st of November they leave this section, retiring to their winter home farther south.

Few of our avian friends, either of the meadow, or bushes, or dooryard, evince such strong attachment to Mother Earth as our sturdy meadow lark. The prairie horned lark will frequently tower cloudward for hours at a time, slighting the inviting face of its friend and protector below; but the meadow lark only mounts to the summits of the trees in his neighborhood, trembling uneasily on his perch as if impelled always to return to his natural sphere. The chipping sparrow and the field sparrow, other so-called "ground birds," are occasionally allured by convenient situations to forsake the sheltering lap of earth and place their hairy cots in bushes and trees, but the meadow lark never loses his implicit trust in her protecting care, and only in her grassy nooks does he think of secreting his treasured home. On the bosom of earth he crouches yet closer to pour into her ear his eloquent plaint. In her sheltering arms he nestles through the shades of night, cozily enwrapped in a favorite tuft. In her lap he finds the morsels that satisfy his frugal wants or the gratification of his stronger desires; indeed,

it seems that, like the fabled wrestler of old, his every contact with earth endues him with fresh animation.

The meadow lark belongs to a proud family, being classed with the Baltimore oriole, the grackles, the bobolink, and other distinguished species. Its place in ornithology being with the grackles and orioles, it is thus seen that it is not a real lark; but the title of lark will doubtless ever be applied to it. It is, however, in no way unworthy of its family, either in attractive plumage, dignified manners, or melodious voice. Its habit corresponds very closely to the places it frequents, its upper parts having mingled brown, yellow, and other colors which mimic the dried vegetation of the meadows. The principal features of its plumage are the rich yellow of its breast and under parts, and the crescent of jet which ornaments the upper portion of its breast. When on the ground it walks with all the dignity of the bronzed grackle, and under no circumstances does it commit any action that will besmirch the fair name it has ever borne, for no shadow of suspicion has touched its character, a fact that will not apply to the grackle and others of its relatives. Like the grackle, it takes its food almost exclusively from the ground. In fact, it serves the farmer more effectively than any other species, and it should therefore receive the protection and regard to which its very valuable services entitle it. Thoughtless hunters and boys who shoot the larks for mere pastime should be promptly ejected from the premises of the farmer who knows his real friends, even when the latter are only birds.

Concerning the food of the meadow lark, a topic of special interest to agriculturists, we have definite information in the investigations of Prof. S. A. Forbes, reported in the transactions of the Illinois Horticultural Society, 1880. In the conclusion of the paper, the author says that we must admit the probable eminent usefulness of this bird. Its great destruction of grasshoppers, and of cut-worms and other caterpillars, and the absence of all depredations other than the appropriation of scattered grains of corn, taken in connection with the fact that it eats only the normal average of predaceous insects, are

all strong indications of valuable services rendered, with unusually few drawbacks. The Year Book of the U. S. Department of Agriculture, 1895, contains a valuable article upon the economic relations of the meadow lark, by Prof. F. E. L. Beal, in which the author states that this species is one of the most useful allies to agriculture, standing almost without a peer as a destroyer of noxious insects.

BOBOLINK.

Our meadow rambles in May are enlivened by the voices of more songsters than we heard in the preceding month, and now the bobolinks jingle their merry notes and especially engage our attention. Swinging on the heads and spikes of the meadow weeds, or sitting in the hedges or on the ground, now flying from the earth to weed-top or hedge, or chasing one another in sportive gallantry, the restless musicians pour forth a stream of tinkling, bubbling melody. At our approach they arise from the grass or weed-tops, and uttering their hurried, jingling notes, they alight in the hedge, keeping together, and all singing earnestly, until, as though by wonted signal or arrangement, the music ceases abruptly and silence ensues, soon to be broken by a more forcible outburst from every throat. The males are chiefly noticeable, and they are now showily bedecked in their vernal color of black, ornamented about the neck and shoulders with buffy yellow. The females keep themselves more hidden among the higher grass, perhaps somewhat ashamed of their brown and duller yellow garments in contrast to the gay robes of their sportive escorts. This is the season of courtship and song, of "mad music" and impassioned antics, of revelings unabated by thoughts of household cares and life's sterner duties, the time when Robert O'Lincoln affects only the dashing manners of a gay and thoughtless cavalier.

No North American bird has aroused more sentiment than the bobolink, nor has any species received more attention in the study of its habits. Its exuberant volu-

bility of song and its rollicking gayety of spirit have inspired the poet to weave into verse the fanciful rhythm of its jingling notes. Its history has been written with more care than the lives of many of our great men, and its place in our literature has been made secure by the classic biography of the species penned by Washington Irving. However, it is probable that there are more persons who know about the bobolink than who know the bird from a personal observation of its appearance and manners. It is easily identified, for no other bird is similarly marked, and no other bird affects the same hilarity of manner or has the same merry jingle of song. The person who has read accurate accounts of its habits and has formed an intelligent idea of its eccentric vocalism is almost certain to identify the bobolink when the first opportunity presents itself. In my opinion many of the praises sung of the bobolink are undeserved, and frequently the descriptions of its manners and song are somewhat exaggerated. One writer, whose interesting volume of bird life lies before me, asserts that the bobolink is the finest bird of our fields and meadows, an estimation of the bird in its eastern habitat which may not be incorrect. Judged by its manners in this section, however, it is not superior to the horned lark that sits on the ground near it and lisps its ditty, nor to the Dickcissel that sings persistently farther along the hedgerow, nor does it compare favorably with the meadow lark in sweetness of song or beauty of color. Its unusual vivacity of spirit in the mating season and the tinkling rhythm of its notes have served chiefly to enhance the popularity of the bobolink, for a careful comparison of its qualities and characteristics with those of some of its fellows would surely lessen the distance which now apparently intervenes between the station of the bobolink in literature and those of other species of merit now scarcely recognized.

As a species, the bobolink is quite generally distributed throughout eastern North America, ranging northward to the Saskatchewan River, and westward to the Rocky Mountains, breeding throughout its given habitat. The winter home of the species includes the region from Mex-

ico to the Argentine Republic and Paraguay. Traveling northward, the earliest migrants reach central Illinois in the first week of May, the day varying from the first to the eighth of the month. They journey chiefly by way of the meadows and hedges, preferring the borders to the more open parts of the fields and pastures. They advance rather leisurely on their migrations, and sometimes spend several weeks in passing this locality. A small troop may halt in a particular low meadow or fancied piece of hedge, and there dally for several days before they disappear. Often, however, they are more hurried, and remain only long enough to announce their presence and to refresh themselves ere they attempt the succeeding stages of their journey. Only a few pairs remain to rear their broods in this section of central Illinois.

In the spring migrations of many of our common birds it is customary for the males to precede the females, the latter journeying more slowly, and reaching their destination after a convenient period. Some of the birds travel northward in mated pairs. In the case of the bobolink, however, it is noticeable that in this locality the males do not travel entirely alone, but usually one female is escorted by five or six males, who vie with one another in soliciting the attention and favor of the lady. When she chooses to sit on the ground, they generally alight on the ground also, though not all near her; and if one of the cavaliers begins his madrigals, another will add his voice, and thus one by one all will take part in the performance. The mingling of their voices produces a curiously fanciful medley; and it is remarkable that while their strains are in various keys, they are commonly in perfect harmony, forming a real bird orchestra. Unlike the beginning of their overture, they end their performance by all ceasing abruptly, as though by word or signal. A short period of silence follows, until one of the impatient troubadours begins softly, after which the previous performance is re-enacted.

Frequently the concert is begun by the action of one of the birds as he rises from his place and flutters into the air, pouring forth his jingle while rising to a perch atop of a weed-stalk, or on the hedge. Should the somber-colored

female alight in the hedge or in a tree, the gallants in her train are likely to follow her and redouble their efforts to please her with their voluble strains. They do not obtrude their company upon her with unbecoming persistence at this time, however, and she appears somewhat indifferent to their gallant behavior; for she is, perhaps, more interested in their safe arrival at the end of the long journey. In the evident absence of the ardor noticeable in the advances of the males several weeks later, we may fancy that they make themselves agreeable to the lady because she happens to be their traveling companion, and they are in her escort to her summer home.

In the "History of North American Birds," the New England habits of the bobolink are thus described by Dr. Brewer: "When they first appear, usually after the middle of May, they are in small parties, composed of either sex, absorbed in their courtships, and overflowing with song. When two or three male bobolinks, decked out in their gayest spring apparel, are paying their attentions to the same drab-colored female, contrasting so strikingly in her sober brown dress, their performances are quite entertaining, each male endeavoring to out-sing the other. The female appears coy and retiring, keeping closely to the ground, but always attended by several aspirants for her affection. After a contest, often quite exciting, the rivalries are adjusted, the rejected suitors are driven off by their more fortunate competitor, and the happy pair begin to put in order a new home. It is in their love-quarrels that their song appears to the greatest advantage. They pour out incessantly their strains of quaint but charming music, now on the top of a fence, a low bush, or the swaying stalk of a plant that bends with their weight. The great length of their song, the immense number of short and variable notes of which it is composed, the volubility and confused rapidity with which they are poured forth, the eccentric breaks, in the midst of which we detect the words 'bob-o-link' so distinctly enunciated, unite to form a general result to which we can find no parallel in any of the musical performances of our other song-birds."

The bobolink nests in this latitude soon after the middle

of May. It invariably places its nest on the ground, most frequently in a natural depression in the meadow soil, in a spot surrounded by tall grass, or else out in the open areas, where there is nothing to indicate the presence of a birdland home. Lowell's poetical mention of "tussocks that house blithe Bob O'Lincoln" loses much of its force to one who scarcely ever finds the nest ensconced in a grass tuft. It loves to nest in the clover, especially if there are numerous weed-stalks on which the devoted male can swing while he pours forth his gushing jingle to cheer the dull life of his mate, brooding over her charge hidden in the herbage. There are few birds that secrete their homes as successfully as the bobolink, or that employ more artifice in approaching and leaving the spot. The actions of the female afford no real clue to the immediate site of the nest. She has a habit of running in the grass for a distance when she leaves her home, and in returning to it she alights some distance from it, and approaches it stealthily in the grass. When startled from the nest, she flutters upward for a moment, and then, dropping back into the grass, she runs swiftly from the spot, and arises in flight at a point safely removed from the premises.

In an article entitled "Dragging for Bobolinks," published in the *Oologist* for August, 1895, the author, Rev. B. P. Peabody, thus interestingly relates his experience in finding the nests of this species: "One end of the rope is tightly fastened to a slender bunch of grass (whence a stout pull may dislodge it). I set about uncoiling it. A brown bird fluttered up before me, and at my feet, embowered in a slight grass nest that crests a bog, nestles a newly fledged song sparrow, while beside it lies the sempiternal cowbird's egg. How eagerly I beat the first circle, drinking in great draughts of morning air! But as I close the circle, loose my line, tie again, and circle again and yet again, my ardor begins to dampen, though many a male bobolink floats and flutters near, laughing at me. But the line of circles has begun to reach out well into the meadow. No birds rise, but new beauties lie at my feet. . . . Though not a botanist, observe the flowers I *must*; for any careless step, taken while the eye eagerly follows the line, sends one leg plunging down into unmeasured depths of

cold, black mire. Just as I rise ruefully from such a plight, a female bobolink bolts up from the grass, half-way along the line, clutches a blade of grass, looks back an instant wonderingly, then dives quickly into the grassy maze, and no amount of beating can flush her. A bit of white rag is hastily tied to the grass near where she rose, and the careful search begins. A dozen square yards are slowly examined, foot by foot, but vainly; when a last faint-hearted, sweeping glance reveals the nest, half crushed by my feet, well hidden in a little grassy bog. It is naught but a dainty, spirally-wrought cup of slender grasses, flush with the sphagnum tops, but it holds five eggs, quite fresh, of the clear-grounded, dark-blotched type."

The nest of the bobolink is constructed without regard to elegance, but rather with a view to concealment, and in the simplest manner to serve its purpose. The natural depression chosen, or the cavity formed by the foot of a horse or a cow in wet seasons, is lined with dried grasses, which are coiled into a circular cup. Dried stems of weeds add to the mimicry of the nest. Furthermore, the eggs have a protective coloration, being a dingy or grayish white, or bluish gray, varying into drab, olive, and other similar hues, and thus showing a wonderful variation in color and markings. The edges of the markings appear to be somewhat blurred, thus forming a blending of colors which enhances the safety of the eggs from discovery by prying eyes. An average egg is .85 by .65 of an inch in length and breadth. The complement consists of four or five eggs, and six or seven are not unusual.

With the advance of the breeding season the songs of the gay bobolinks are heard less frequently, and the demure, sobered manners of the males, patiently caring for their families, are quite in contrast to their wanton habits in the earlier season. The poet is happily faithful to his muse and to nature in this picture of Robert O' Lincoln as a devoted husband and father. He says,

" * * * that devil-may-care, the bobolink,
Remembering duty, in mid-quavers stops
Just ere he sweeps o'er rapture's tremulous brink,
And 'twixt the winrows most demurely drops,
A decorous bird of business"—

a poetical portrait satisfactory to the most critical bird-lover. The vernal revels are ended; the gay dress of the gallant cavalier is replaced by a garb suitable to the "farmer 'mid his crops," resembling the constant dress of the female; and life becomes plebeian and prosaic in the absence of song, color, and social reveling. The bobolinks do not tarry in their summer homes after their broods are reared, but, like the grackles, cowbirds, and others of their family, they form large flocks, and congregate where their food is found in greatest abundance. Early in August they leave this region, simultaneously with the Baltimore oriole, Dickcissel, and other tender species. Their fall migration from Illinois is seldom noticed except as their absence is remarked; for their appearance is so altered, and their behavior so different, that persons generally do not recognize the birds whose arrival was announced by impassioned music and wanton gayety. Instead of dallying along the road, and alighting here and there as fancy leads them, they fly high on their late fall migrations, with the undulating movements of the grackles and cowbirds.

In the Eastern States the bobolinks resort to the swamps and marshes after the nesting season, to feed on the seeds of the sedges and grasses. Their manners then are very similar to those of the grackles, which frequent the swamps in dense flocks in the fall. As the voracious bobolinks feed on the seeds of the swamp grasses, they grow plump and fat, and are killed in numbers by market hunters for public and private tables, being then known as "reed birds." Continuing their southward movements, they invade the rice-fields of the Southern States, and are then most destructive to the planters' interests, though they are there game for the gunners, and served on the tables of hotels and restaurants. The change in their food and surroundings seems to give the bobolinks new characteristics, and in their Southern environments they receive the popular name of "rice-birds."

The bobolinks have no recorded fall history in Illinois. They are not in demand to supply the tables of our Western gourmands, and therefore they are not especially sought in the fall season. The individuals that have re-

sided among us in the breeding period hurry out of the State, and it is probable that they take a more easterly route on their return to their winter homes, joining their forces with the ranks which have formed toward the eastern borders of the Great Lakes. Eastern observers report that unusually heavy flocks of these birds congregate in the swamps of the Middle Atlantic States, and Western observers agree in reporting the absence of the bobolinks along the line of the spring migrations. Diligent observation may establish the truth of our present theory that our summer bobolinks of Central and Northern Illinois pass across Indiana and along the southern shore of Lake Erie, reach the swamps of the Eastern seaboard by way of New York and Pennsylvania, and thence move southward leisurely in company with the regular Eastern migrants.

DICKCISSEL.

Among the musicians whose voices lend spirit and harmony to the otherwise dull life of the meadows, none is better known or more persistent in the production of melody than Dickcissel. However, he may not be recognized readily by his numerous friends under the given title, for his book name is seldom used by those who see and hear him at his best. He is commonly regarded as a lark, being sometimes called the "little field lark" in distinction from the meadow lark, but neither of these birds is closely related to the larks. Dickcissel is really a finch, or bunting, belonging to the great family *Fringillidæ*, while the meadow lark is a member of the royal family *Icteridæ*. The bright yellow of his breast and the black spot on his throat have been supposed to show his relationship further to the meadow lark, which has similar markings, and therefore Dickcissel is popularly known as the "little meadow lark." Formerly he received a book name suggested by the distinctive markings mentioned, and was then the black-throated bunting; but so few knew him by that title and so many of his friends were familiar with his earnest exhortation, that he was given

the name sounded in the notes he utters, and is now Dickcissel. Among the boys of the farm he has other local and familiar titles, for his chant is ever obtrusive as it rises from hedges, bushes, and tops of meadow weeds, and persons who dwell in rural localities have ample opportunity to learn something of his evident traits and characteristics.

The summer home of Dickcissel is eastern United States, extending northward to southern New England and Ontario, and the States bordering the great lakes. He ranges westward to the edge of the great plains, frequently to southeastern United States on the migration. His winter home is in tropical regions, extending as far south as northern South America. This bird is said to breed chiefly north of the Southern States. Dickcissel is not so hardy as most of the sparrows and some other members of his family, for he seldom reaches our latitude before the last week of April. He comes with the Baltimore oriole, the rose-breasted grosbeak, the warbling vireo, and other birds which do not appear until the trees are unfolding their buds and expanding their blossoms. Dickcissel, however, cares little for the buds and blossoms, for he is not a frequenter of the trees except such as border the meadows and cornfields; and when he reaches our locality at the close of his long journey from the tropics, he finds the hedges bare or only beginning to don their verdure. Apparently enjoying the change from tropical luxuriance to the northern nakedness of the hedges, and knowing that the rapidly unfolding beauty of the vegetation will soon compensate him for the discomforts of travel, he mounts to his favorite perch and immediately voices his satisfaction with his lot, anticipating a season of continuous melody and content.

The Dickcissels show a decided preference for meadows, cornfields, and unbroken prairie; and along the hedges and fences bordering such resorts they alight abruptly after their short flights from the ground, and chant their accustomed strains until they are disturbed or impulse leads them to flit farther along the hedge or back into the meadow grass. Clover fields have a great attraction for them, and in the vicinity of clover patches they

seem most numerous and vivacious, though along the margins of fields of wheat, oats, and other grains their voices are commonly heard. Travelers along the rural roads have opportunities to learn something of the appearance and manners of the Dickcissels. As we pass them perched in the hedges or near the summits of low trees along the roadside, or clinging to the top of a convenient upright rail of the fence, we note their decided resemblance to the meadow larks, though they are much smaller, an average specimen being about the size of the bluebird. In our cursory examination of the individuals we thus meet, we observe that the prevailing colors of the upper parts are yellowish brown. The males have bright yellow breasts and an ornamental black patch on their throats, with dingy white under parts. The females are without the yellow breasts and the black throat patch, having the lower parts dusky white streaked with darker colors. The movements of these birds on the ground are seldom observed, though they often flit from higher situations to the grass, and alight on the low weed top; and tussocks to utter their songs. However, they do not walk about on the bare ground like the meadow larks, but rather hide in the grass like the sparrows.

The vocal efforts of the Dickcissels have been characterized as monotonous; yet if they were less persistent vocalists, their performances would doubtless seem less uniform and tiresome. Their singing has also been described as wholly lacking in melody, but in my opinion it is equally meritorious with the efforts of some bird musicians generally received with open favor. There is a moderate degree of variation in the musical ability of different individuals, but the ordinary song has been well interpreted in the rendition, "See, see—Dick, Dick, cissel, cissel." It is executed in a manner very similar to the performance of the song sparrow, the opening syllables being pronounced slowly and loudly, the remainder being more hurried and in gradually ascending pitch. At any hour of the day, even in the greatest heat of noonday, the voices of the Dickcissels can be heard, and frequently a number are within hearing, as the birds are perched on branches of convenient hedge trees, or on fence stakes, or

the bending stems of the meadow weeds. When the cares of family are increasing, the voices of the Dickcissels are at their best, and in the vicinity of their nests they chant with most persistency.

There are only a few birds whose joy in their homes, embowered among the adjacent foliage, overflows while they are almost on the threshold of the sacred spot. The soul of the little warbling vireo is so full of music that it can sing while sitting on its nest brooding its rose-tinted beauties. The voluble house wren, after a visit to its mate tucked away in its feathery bed in a crevice, can scarcely repress its expressions of joy until it has whirled away from the tiny entrance. The cardinal frequently whistles the most gaily while seated in the summit of the bush which shelters his mate on her nest. It is thus with Dickcissel; for though his ditties are not always eloquent to us, he is brave in proclaiming his happiness near the fountain of his inspiration. While his gentle mistress patiently attends to her household in some low bush or tussock near the hedge, Dick flutters from perch to perch in the immediate vicinity and voices his love and devotion. Once I flushed a female from a nest in the top of an elm bush along a railroad while Dick was proclaiming his name from the top of a hedge within twenty feet of the site. Even while she was chirping anxiously about the spot, apprehending that her home might be harried by ruthless visitors, he was brave and hopeful, and tried to sustain her anxious mind by ringing forth his cheerful exclamations. It is a pity that we are not always thus hopeful and buoyant in the face of impending misfortune.

Ordinarily the nests of the Dickcissels are not begun before the first of June, but in advanced seasons the nests are made and the eggs deposited before the end of May. Nests with fresh eggs can be found through June and early July, though it is perhaps the rule that only one brood is reared, the later attempts at nidification following the destruction of earlier nests. A most common site for the nest is in the base of a tussock in a hay field. The habitation is frequently situated in a low bush along hedges, among stems near the middle of the bush. Other

nests are built higher in bushes and dwarf trees. I have found them in hedges as high as eight feet from the ground.

Do the birds really profit by their unfortunate experiences? Many of the birds that nest on the ground undergo great misfortunes from the plow and the mower. The prairie horned larks usually begin to nest in this locality before the spring plowing has commenced, and many homes of these birds are annually destroyed in the breaking of the ground. Later the larks choose sites at the bases of the young corn, and the cultivator comes along and brings disaster to the new establishments. Many broods of the prairie chicken are thus cut off in their embryonic stage by the plow. The time of greatest loss to the Dickcissels is when the clover is cut for the first crop, the mower uncovering many a cozy and safely-hidden home. When the time for cutting the clover is at hand, however, if a new nest is to be made by a pair of Dickcissels, they sometimes choose a retreat in the drooping branches of an untrimmed hedge bordering a field, and establish their new home on the horizontal, over-arching boughs. Thus their habitation is secure when the mower unroofs the homes of their neighbors. These higher nests of Dickcissel are usually better specimens of architecture than those on the ground. They are more nearly spherical, and are generally well woven and evenly rounded, since they are often in situations where they are not held in shape by surrounding stems. Some of these late structures are in form not unlike the nests of the orchard oriole.

The nest is made externally of coarse, dried weed stems, corn husks, and strips of bark, having in most instances a middle wall of finer grass stems. It is lined with fine dried grass, sometimes with rootlets and horse-hair. I have found specimens of which the entire external layer was composed of peppergrass. The nest is comparatively large, but is generally compact, and hence does not readily fall apart. The cavity averages more than two inches across its top, and is two inches deep. The nest is commonly well screened from view by stems and foliage, and is oftener passed than seen by untrained

bird-seekers. The eggs are four or five in first complements and three or four in late sets, for I have found as many incubated complements of three eggs as four in July nesting. They resemble the eggs of the bluebird so closely that I can perceive no difference. Their average size is .80 by .60 of an inch.

A feature to be remarked in the habits of the Dickcissels is the abrupt change of manners, after their broods are reared, from their former life of activity and energetic singing to a period of close seclusion and almost absolute silence. This transition from song to silence takes place with the individuals when the yellow mouths of the nestlings transform the eager songs of the males into anxious chirps for the safety and comfort of their offspring. The sharp chirps of the parent birds, supplying the hungry demands of their younglings, are the only notes heard, soon to be supplanted by the sharper cries of the fledgelings after they leave the nests and sit in the hedges and on grass tufts calling loudly for immediate attention. The young, however, soon learn to make their own living, and then the family disappears. I believe that the young males sometimes attempt to sing before they leave the localities where they are reared, for on several occasions I have heard a queer song of the species, which I immediately decided to be the performance of a young male of the year. This premature song usually begins with several sharp chirps, and ends with a squeaky resemblance to the "cissel, cissel" part. Its imperfection is so manifest that it can not be ascribed to a practiced vocalist of the earlier season.

The change of habits of the Dickcissels is almost simultaneous with the disappearance of the orioles, who abruptly depart from the scenes of their former vivacity and melody. The Dickcissels, however, remain in the neighborhood after they become silent, resorting to the thick foliage of the hedges and to patches of tangled weeds. As we ramble along the hedges in August, we startle them out and they dart ahead of us in their slightly undulating, sparrow-like flight, soon turning hastily into the hedge or dropping into the weeds, which form a close covert for their movements. When there are wild black-

berry bushes growing along the hedge, the birds can be found among them feeding on the wild fruit, in company with skulking brown thrashers and catbirds. They are regular seed-eaters, and in the late summer depend chiefly on the seeds that fall from the weeds and the wild berries growing near their coverts. In the first part of the season they feed on the early seeds, and are more insectivorous, the insect elements of their food increasing when the nestlings demand their care, as the young subsist almost exclusively on insects and larvæ. In the *Transactions of the Illinois Horticultural Society, 1876*, Prof. S. A. Forbes reports that his investigations show that 68 per cent. of the food of the Dickcissels renders them beneficial to horticulture, 7 per cent. injurious, and 25 per cent. neutral, thus leaving a large balance in favor of our summer friends. The boys of the farm should spare their homes whenever possible.

The Dickcissels leave us in the latter part of August, departing silently and unobserved from the localities in which they appeared at the opening of the season with voices attuned to the increasing chorus of nature, having spent less than three months with us in song and gladness, and less than four months in their Northern summer home. It is a wonderful fact that the amatory and maternal instincts of most birds impel them to journey hundreds of miles to temporary homes where they sojourn less than half a year, exhibiting for only a few weeks a spirit of happy content. With the exception of the alder flycatcher and Bell's vireo, the Dickcissels tarry with us a shorter period than any other birds of my acquaintance, and we should accept the generous measure of their merry chanting while they are here, knowing that they will early disappear and leave the hedge more bare to our minds than when they appeared in its summit to execute their first happy chansonettes.

BARTRAMIAN SANDPIPER.

Over our heads in our April and May rambles there flies a gray, snipe-like bird, frequently uttering a long-drawn whistle not much unlike the southing of the wind among the trees. Now he soars on expanded pinions, or, after hovering on fluttering wings held out from the body, he sails in a long, descending, elliptical arc and alights on the ground. Again he soars upward, and goes to a distant part of the field, where he is joined by his mate, who soon sails whistling to another of their haunts. This bird is no stranger to the farmer boy, for all through the springtime while he plows and works, the "field plover" soars and whistles, claiming the notice of all observers. The bird is the Bartramian sandpiper, properly a tattler, and does not belong to the family of plovers; but having been thus styled by popular voice, he will without doubt be known chiefly by his early-acquired title. His preference for the open prairies, cultivated fields and meadows has led him to forsake the sloughs and streamsides which he was intended to frequent; for he is classed with a group of birds which by nature are frequenters of the shores of inland lakes, ponds, and the banks of rivers, and have the toes partly webbed to facilitate their movements along the edge of the water. The Bartramian sandpiper seems perfectly at home in the meadow, and we admire the slender figure of this upland creature as he runs ahead of us over the bare areas or appears with head erect after threading his way rapidly through the grass which momentarily hides him from view. Standing on a bare spot in the lower parts of the meadow, the bird is somewhat difficult to discover, for the gray plumage of its back, grading into white on the lower parts, bears a general resemblance to the surroundings, and renders the bird nearly safe from observation except when it raises its head and slender neck to watch our movements.

In the "Key to North American Birds" Dr. Coues gives the habitat of the species as "North America at large; rare west of the Rocky Mountains, in profusion on the prairies of the interior, and common eastward;

north to the Yukon. Breeds from the middle districts northward; winters extralimital." These sandpipers generally reach central Illinois soon after the first of April, varying earlier or later with the advance of the season. It does not appear that we are in the route of the heavy or regular migrations, for most of these birds that come to us are summer residents, and immediately establish themselves in a particular field or group of meadows, in which they will later choose a convenient depression for their future habitation. They also commonly come to us in pairs, having settled the momentous question of partnership before their arrival, as only two birds are usually seen in the area which they seem to claim, and these two rear the brood which later increases the interest awakened by the older members. Doubtless there are frequent visits exchanged between the residents of neighboring fields, but ordinarily the birds are happily mated when they indicate their choice of a summer home by immediate and continued occupation.

After the beginning of the breeding season, it is almost impossible to surprise the birds in entering their chosen domain. As we near the quarters of a pair of the sandpipers, we are apprised of the fact that our presence is known by hearing the long, peculiar whistle of one of the birds, and we may see it sailing high in the air watching our movements. During our stay in the meadow we are kept under close surveillance by one and perhaps both of the birds sometimes sailing and hovering directly above us and then gliding downward to alight near us. I have frequently ensconced myself behind a convenient hedge to watch the movements of a pair of these sandpipers, in order to find the nest which I felt certain was situated somewhere in the meadow over which the birds hovered with such jealous watchfulness, but my trouble was always turned to naught by the penetration of the vigilant owners. On one occasion, after I had tramped over a meadow in search of a nest, I concealed myself behind a hedge through which I could watch the actions of the anxious birds, but even in my leafy shelter I was discovered and outwitted by them. They sailed over my head within forty feet of me, and frequently alighted very

close to me on the other side of the hedge, as though to tantalize and mislead me. Often have I climbed through a hedge and gone in search of a nest near a spot where I had seen a sandpiper alight, but the birds never thus revealed to me the source of their whistled content.

When these birds are mated—and they are seldom seen otherwise in this locality in the early part of the summer—they evince wonderful attachment and faithfulness to each other. Should either of them espy the approach of an intruder, and sound the prolonged mellow whistle, the other bird is certain to appear soon and to add its efforts to those of its mate in attempting to mislead and baffle their disturber. One does not seem to care to be in close proximity to the other, but there seems to be perfect understanding and confidence between them; and when one alights and threads its way among the grass tufts, the other does not impatiently follow it. Indeed, the movements of either bird on the ground are always leisurely enough to attract notice to this mutual trust. I have sometimes waited many minutes for one to fly after it had alighted in a spot favorable for observation. I once watched a bird that remained in one spot during the time in which I ate my lunch, and I have looked so long at one that my eyes became fatigued because of the mimicry of the bare spot in which the bird stood. Oftener, however, one will walk quietly and then pause awhile to take observation, again running several steps and then reconnoitering as before.

Its long slender neck aids the sandpiper in raising its head above the surrounding grass to watch the movements of an intruder. Indeed, the slender form of the sandpiper is a feature worthy of note, and this characteristic lends a grace to it which compensates for its lack of striking colors, and we are impelled to regard the bird as handsome even in somber colors. Its delicately balanced head nods gently with the motion of its body as the owner runs between the tufts and peers over the top of the grass, or steps lightly about the narrow limits of a bare area amid the verdure. When suspicious of the intentions of an intruder, one of these birds will sometimes alight on a fence-post or in the hedge, the better to observe

the movements of the suspected person. Immediately after alighting it lifts up both wings, and holds them out from the body for a moment before folding them, greatly like the actions of the sparrow hawks when they settle from flight. We readily perceive the aptness of its popular name of "grass plover," for a large portion of its time is spent in running over the short grass. Its preference for pastures, meadows, old fields, and uplands generally has been remarked by those who know this bird as the "upland plover." In the West it is known as the "prairie pigeon" and "prairie snipe." In this section its commonest appellation is "field plover."

These birds begin to nest in central Illinois soon after the first of May, and the breeding season is prolonged into June, though only one brood is reared, except in rare instances. The nest is always situated on the ground, and is therefore difficult to find, unless it is disclosed when the female is startled from it, or when the bird is seen to enter it—the latter case being exceptional, since the birds run in the grass so irregularly. Nidification is not a very complicated process with the sandpipers, as they ordinarily find a depression beside a tuft which pleases the fancy of the female, and the dried grass of which the habitation is made can be scraped together in a short time. As building sites low meadows are most favored, and pastures containing ponds, or broad, shallow ditches, though the nest is commonly placed on the higher ground of the area. The architectural ideas of the sandpiper are similar to those of the meadow lark, but usually the nest is not so well sheltered by a grassy dome. Davie says: "The eggs of Bartram's sandpiper are of pale clay or buff, thickly spotted with umber and yellowish-brown, especially about the larger end; commonly four in number; sizes range from 1.70 to 1.90 long, by about 1.28 broad."

The description of the Bartramian sandpiper given by Dr. Coues in his "Birds of the Northwest" is so interesting that we take pleasure in quoting his account of the young birds. He says that they "are curious little creatures, timid and weak, led about by their anxious parents, solicitous for their welfare, and ready to engage in the most unequal contests in their behalf. When half grown, but

still in the down, the little creatures have a curiously clumsy, top-heavy look; their legs look disproportionately large, like those of a young colt or calf; and they may be caught with little difficulty, as they do not run very well. I once happened upon a brood—perhaps two weeks old—rambling with their mother over the prairie. She sounded the alarm, to scatter her brood, but not before I had secured one of them in my hand. I never saw a braver defense attempted than was made by this strong-hearted though powerless bird, who, after exhausting her artifices to draw me in pursuit of herself, by tumbling about as if desperately wounded, and lying panting with outstretched wings on the grass, gave up hope of saving her young in this way, and then almost attacked me, dashing close up, and retreating again to renew her useless onslaught. She was evidently incited to unusual courage by the sight of her little one struggling in my hand. At this downy stage the young birds are white below, finely mottled with black, white, and rich brown above; the feet and under mandible are light colored; the upper mandible is blackish."

In this locality the young birds discover the same attachment for their native meadow as the parent birds. They spend most of their time on the ground, and do not scatter far from one another, the entire family being usually within easy call. When alarmed, the parent birds take wing, while the young run among the grass tufts, though they are able to fly well. A person not familiar with the habits of these birds will wonder on seeing them ahead of him, when they have not previously attracted notice; they seem to start up like sprites from the meadow grass. The young birds have a trick of hiding behind the tussocks, thus waiting for the near approach of the disturber, and then flying for a distance, alighting to run and skulk in the grass as before. Here they do not form flocks, as we are told they do in the Northwest, where they are found in such numbers. It is possible that the residents of this section join the regular flocks when they reach the routes of the heavy migrations, but here they disappear as they came, in families and as individuals.

Since these sandpipers spend so much of their time in the fields, pastures, and meadows, their utility is un-

doubted in the destruction of grasshoppers and other insects injurious to the interests of vegetation. They are probably as faithful as the meadow larks in searching among the roots of the grass for hidden insects and lurking larvæ, though their services in this direction are not so prolonged, since they come later and leave earlier. They are said to feed also on small berries and the tender buds of plants, and from the edge of the water to pick up a small proportion of animal food.

GRASSHOPPER SPARROW.

"Surely," exclaims a reader, "you do not mean to include the grasshopper sparrow among your musicians! Or at least you do not mean to characterize the faint, shrilling performance of the grasshopper sparrow as music!" And why not, pray tell? To the sympathetic ear the voice of the humble grasshopper sparrow is as necessary to the harmony of the meadow overture as the clear piping of the meadow lark or the jingling triangle of the bobolink. The leading instruments of the orchestra usually receive our attention, yet the accompanying pieces are chiefly responsible for the resulting harmony. Taken alone, the notes of the minor parts are harsh and unmelodious; but sounded in time and concord with the cornet, the first violin, and the double bass, they assist in producing an effect delightful and harmonious. Thus it is with the voice of our little accompanist in the mottled brown coat. Heard alone at close station, it is seemingly shrill and unmusical; but in the midst of expanded verdure, following the lead of other meadow voices, its noon-day crooning produces a dreamy harmony perfectly in accord with the thoughts of the listener. And how fitting is the bird's name! Who would ever think, on first hearing the wheezy, burring trill of the hidden performer, that it was not the stridulating call of a grasshopper or other insect nestling in the grass? Of all the bird voices of the meadow, for its interesting originality and its effect in ensemble, we can least spare that of the little grasshopper sparrow.

Notwithstanding the abundance of the grasshopper sparrows in the meadows and hayfields, however, there are many persons who never think of associating these little timorous brown and yellow-clad creatures with the shrill trilling so common in such places. By many of the farm boys the startled birds that dart through the grass at their approach are known as "grass birds," an extremely appropriate title, by the way, for few birds spend more time in the grass than these shy, retiring sparrows. Though a number may be heard calling at any time in the mating and nesting season, none may be in sight, and in the mingled green and brown herbage of the meadows they sit through most of the day, incessantly repeating their wheezy trills. The popular name of "ground bird" is equally significant of their aversion to long flights or high situations from which to shrill their measures of content. On the ground or in the grass they run like meadow mice to elude the presence and notice of intruders; and though the terms "grass bird" and "ground bird" are indefinite and applied to other birds of the meadows, they suggest the leading traits in the habits of these sparrows. Another distinctive appellation formerly given to them and yet retained by them in some localities is that of "yellow-winged sparrow," a very satisfactory term, in view of the markings by which these birds may be readily identified by the novice. While the wing is not entirely yellow, the bend of the wing is brightly marked with this color, and the lower division of the shoulders is tinged with the same conspicuous color. These marks will enable the bird-gazer to distinguish these interesting little sparrows from other members of the family which bear superficial resemblances to them.

Grasshopper-like in its utterances and mouse-like in its movements on the ground, it is no less original and interesting in its flight. Have you never watched the aerial movements of certain birds and conjectured the purposes of their flight? Why does the sluggish red-tailed hawk soar above us in widening circles, mounting ever higher and higher to float scarcely lower than the drifting cloud-fleeces, except to forget the earth for a time and bathe in the flooding sunshine? And when the

vulture wheels around a projecting angle of the grove, careening low in the full strength of its broad pinions, do we not immediately infer that it is thus impelled by a powerful craving for its natural food? Have you not seen the blue jay flitting silently from tree to tree in an orchard or row of highway maples, and instinctively decided that it was guilty in intent if not in deed? The robin flits swiftly across our path and wings its way around intervening objects in a manner so business-like that we perceive it has an object in view, perhaps a mud hut upon a horizontal branch of an elm, or in a high crotch of a tall maple yonder. But who ever saw a grasshopper sparrow start out in flight as though it knew whither it was bound? In fact, its starting is so sudden that it surely has no time to plan its course or determine its destination. A hurried darting through the grass to mislead the observer as to its starting point, a blurred vision of brown mottled with yellow, and away it goes in a zigzag, erratic course, as though dodging an invisible pursuer close at its heels, up and down with the jerky movement peculiar to the sparrows, apparently progressing through the air by short leaps above the general level of the line of its flight, until it drops vertically into the grass and vanishes. Thus it behaves also when not startled, for it sometimes takes an airing over the meadow toward evening, flying usually about six or eight feet above the surface, following a circular course in the general result, but varying to the right and left of a true circle. In these evening excursions it rises from the ground with its characteristic, hurried movements, and at their close it drops as abruptly and aimlessly into the grass as though escaping from impending danger and confused beyond the use of its guiding faculties. These voluntary flights of this sparrow are not often observed, and only in the vivacity of the mating season does it partially forget its ordinary proclivities.

In the second and revised Check-list of North American Birds, the grasshopper sparrows are given a geographic distribution throughout "Eastern United States and Southern Canada, west to the plains, south, in winter, to Florida, Cuba, Porto Rico, and coast of Central

America." These sparrows seldom arrive in this section before the middle of April, when the hardier migrant sparrows have been with us over a month, and have in most instances established their homes and begun house-keeping. True to their unassuming and retiring disposition, they are silent for several days after their coming, raising their feeble trills only occasionally until they gradually acquire greater confidence. As the mating season advances, however, and their fellows increase in numbers in their resorts, their voices are heard incessantly throughout the day and throughout the breeding season, which is protracted into July. From various situations in the meadows their shrill ditties greet the ear. To determine the station of one of the concealed performers, we strike a line directly toward the supposed spot from which the call arises; but ere we reach the conjectured location, the performer has secretly shifted his position, probably between his short trills, and we fail to discover him. Thus they sing here and there throughout the area, sometimes not far away, but eluding our efforts to flush them, like veritable jack-o-lanterns of the broad noonday.

However, if we scan the meadow surface closely, on some low weed top or grass tuft we may descry the indistinct form of one of the interested performers, clinging tightly to his support in order to throw his head more erect, and in fancy we can see the vibrations of his swelling throat as he rattles forth that monotonous expression of his emotions, perhaps to engage the fancy of his lady sitting in the grass at the base of his support. Sometimes the summit of a vervain furnishes him a lofty platform from which he can pour forth his affections, or the taller spike of a mullein. On extraordinary occasions one will mount a fence post or other isolated object of similar height and there deliver his wheezy lay. Whenever one finds himself an object of attention, however, he drops immediately into the subjacent herbage, objecting to remain in view as well as to sing for human listeners, and thereafter for a time he sings to his mistress from a lowlier situation. If the singer is undisturbed, he will remain on one perch for many minutes repeating his

characteristic call, even exhausting the limited patience of the interested bird-gazer who wishes the bird would do something besides sitting there and uttering that monotonous grasshopper trill, yet who is aware that any movement on his part may drive the diminutive performer immediately into the grass beyond recall.

The grasshopper sparrow further evinces its disposition for privacy by the concealment it seeks for its home, and by guarding its secrecy after the home has been established. It chooses a depression at the base of a tuft of grass, or a nook beside the roots of adjacent tufts. In its general plan the nest is a miniature of the home of the meadow lark, except that the roof of the grassy cot is a continuation of the bottom and sides, and hence it can be removed as a whole from its recess among the bases of the grassy stems.

The eggs are clear white, having a perceptible polish, and are spotted irregularly with reddish brown. Their breadth is large in comparison with their length, and in all respects they are quite different from the eggs of our common sparrows. They vary greatly in size, averaging about .75 by .58 of an inch in length and breadth.

I chanced upon my last nest of this sparrow in crossing a small hayfield. The female darted out of the grass at my very feet; in fact, I had stepped over the nest with one foot, and was standing directly over the site thus revealed by the startled owner. The entrance of the grass-thatched hut was in the sloping side, in what might correspond to the upper story of the nest, and was barely large enough to admit the body of the bird into the cozy retreat. Above the roof of the sunless home the rootlets and stems of the grass had spread, so that the nest appeared to be sunk among the dark fibers, and was protected on every side except at the entrance. Marking the place by setting up the dried stem of a weed, I returned to the nest several hours afterward, approaching it on the side of the entrance to observe the owner at home. As I stealthily drew near the nest and peered over the heads of surrounding timothy, I found the little creature nestling on her treasures, the opening of the nest being large enough for me to note the lines of yellow ra-

diating backward from her eyes, one in the middle line of the crown and one over each eye. These characteristics, with the yellow markings of the wings, will enable one to identify an individual of this species. Still she tarried, looking wonderingly as I cautiously drew nearer and nearer, until I was fairly bending over the site, when she darted out and away in her peculiar manner, thus uncovering her five glossy eggs and leaving them without a parting chirp.

Although the male seeks to win the affections of his lady love by persistently shrilling near her the story of his passion, he generally represses his love trills near the home which his mistress has established. He is perhaps aware that the snug habitation is safe from observation, and that its secrecy is assured if he is discreet in selecting the stations from which to cheer the monotonous life of his mate. Cheer her he must, however, and so he trills throughout the day from fancied situations within her hearing, yet safely removed from the guarded spot. He commonly sings from the ground, but frequently mounts a low weed stem, sometimes remaining on a particular perch for many minutes, at other times changing his position with the humorsome restlessness which characterizes the sparrows. When his brooding spouse wishes to take a few moments of relaxation from her duties, to run among the rank culms or to flit a short distance over the waving verdure, he gallantly relieves her and lovingly assumes charge of the household affairs in her absence. Indeed, our little grasshopper sparrows seem to be models of conjugal deportment, and hence their domestic life is apparently felicitous, without many of the jars noticeable in the lives of others of the birds. After a brief season the assiduous brooding of the female is rewarded, and the ease and song of the former days give place to anxious care for the helpless offspring. The mowing of the hay generally terminates the nesting season, and it is probable that in most instances only one brood is reared.

The habits of these sparrows after the breeding season are strictly in harmony with their history in the early spring and summer. They skulk even more

closely in the grass and weeds than in the earlier season, though their trills are heard generally through the most of July, in lessened intensity and decreasing frequency. The changed appearance and condition of the meadows after the haying time are accompanied by a transformation equally noticeable in the behavior of the meadow birds. Their former animation of movement and vivacity of manner seem quite foreign to the retiring, skulking disposition discovered afterwards. However, we must resign ourselves to the unpleasant phases in the characters of our feathered friends, knowing that instinct and external causes operate to prepare them for the annual movement soon to take them from their summer homes. The season of summer bird-life is short and full of incident. Its beginning is courtship and ecstatic song; its continuance is tempered joy and accumulating cares; its ending is silence and seclusion.

How perfectly typical of our own transient existence in the short span of life, with its gay and happy youth, its moderate joys of the middle period, and its somber waiting for the time of departure!

II.—RESIDENTS OF THE ORCHARD.

"Buds, which the breath of summer days,
Shall lengthen into leafy sprays;
Boughs, where the thrush with crimson breast
Shall haunt and sing and hide her nest."
—BRYANT.

AN orchard is a mine of almost limitless opportunity to the observant lover of bird-life. From the advent of the bluebird, forerunning azure skies and invigorating breezes, until the sweet plaint of the "peabody bird" is heard on the frosty mornings of early fall, the typical orchard is animate with the movements of the birds, and vocal with their notes and cries. There

"* * * the busy birds shall flutter,
With the light timber for their nests,
And, pausing from their labor, utter
The morning sunshine in their breasts."

There the foliage seems to expand with unusual vividness, forming a more complete setting for the living gems flashing among the spreading branches, and there the birds seem to utter their notes with additional charm and fervency. There also they receive our advances with diminished suspicion, and hence afford us opportunities of reading more closely between the lines of their ordinary existences, and of comprehending more fully the impulses that prompt their individual actions. Besides its convenience in situation, the orchard has a methodical disposition of its trees, and hence its different portions are more evenly lighted, thus assuring the beginner in ornithology more satisfaction and profit in entering upon his studies there than elsewhere. Orchards in the outskirts of villages, or in the vicinity of woods, streams, and ponds, are notable for both the variety of species and the number of individuals dwelling within their limits. Old orchards are more populous than younger orchards, because they furnish more nesting sites, and also because they present

a more bountiful supply of food in the increased numbers of insects which infest decaying and aged vegetation. These centers of avian activity are within the reach of most persons who love to study nature at first hand; and only thus can nature be really studied. To know the birds, one must visit them in their haunts, and there train the ear to distinguish the varied notes of joy and praise, or anger and alarm. In the resorts of his avian neighbors, the bird-gazer must accustom his eye to recognize the colors of the twinkling wing, and to identify the flitting form among the friendly foliage. As one extends his acquaintance with the residents of the orchard, its little area will exert increasing charm and fascination for him. No portions of the experience of the bird-gazer are fraught with more pleasant memories than the hours spent with the animated, thriving inhabitants of the orchard colony.

For our first visit to the orchard we appoint a morning in the latter half of April, and soon after sunrise we reach our destination, knowing that we should be early afield to find our feathered neighbors active and musical. Fortunately, the morning is well adapted to awaken the latent enthusiasm of the novice. The mild breeze whispers to us of the fervent breath of the summer sun, and the azure face of the heavens greets us with unclouded brow. The fresh foliage glows with vernal splendor, and the bursting buds gleam in their emerald settings. As we enter the limits of the orchard the noisy grackles or crow blackbirds become interested in our movements, and thenceforth attend our steps with vociferous objections to our intrusion. Most of the summer birds have arrived, and stirring scenes of labor are being enacted on all sides. However, we must not be allured by every engaging sight and sound, but must focus our powers of observation upon a particular species, if we desire to gather definite knowledge in our morning visit to the orchard. Standing under a tree, we pause to note the movements of the various individuals within the range of our observation, and to select a promising object of study, when a gentle twitter is heard, and the familiar notes call our attention to a species we have long known and loved.

BLUEBIRD.

What delightful suggestions are wafted into our minds with the touching carol of the bluebird! Its first faint, wind-borne warble is a herald of bluer skies and sunnier days, though the author often appears in our latitude before the departure of winter, and frequently encounters bleak winds and leaden skies ere spring exerts its full sway. However, we who love the birds look eagerly for the appearance of the bluebird, and we regard its arrival as an earnest of the brighter days certainly at hand. How can we fail to regard its azure except as a fragment from the blue of the summer noonday arch, or its white except as a shred from the floating fleeces of the spring midday? Surely the bare outlines of the maple in whose top the first bluebird is warbling are speedily to be clothed in a living garb of green. We think of

“* * * deep shadows on the grass,
Of meadows where in sun the cattle graze,
Where, as the breezes pass,
The gleaming rushes lean a thousand ways.”

And so we read in the tender utterances of the bluebird a message from the very heart of summer, and we seem to hear the gentle rippling of the poet's returning flood of life as it creeps upon the shore of our environments.

The first bluebirds of the season appear in the open regions of central Illinois early in February. The date of their earliest arrival noted in my journal is February 3, 1884, and the date of their latest arrival recorded by me is February 25, 1881. Some observers in this locality, however, report the residence of the bluebirds through the winter. I have never seen them about this neighborhood in midwinter, the open prairies here doubtless affording them no suitable shelter from our chilling winds. Yet they remain in numbers in the heavy forests of the Mississippi, Ohio, and other river bottoms in the southern part of our State, where they find supplies of berries of the mistletoe, sumach, scarlet thorn, holly, besides wild grapes, and a few hardy insects. The notes of Mr. O. Widmann upon "Bird Migration in the Mississippi Val-

ley," compiled by W. W. Cooke, and published in *Forest and Stream*, October 12, 1882, report that great numbers of bluebirds stay all winter, becoming more and more numerous during February. Their spring arrival in New England is said to vary from the last of February to the 10th of March.

Though the bluebirds merit our lavish encomiums for braving the uncertainties of opening spring to suggest to us visions of living color and the wealth of summer loveliness, they seem to hesitate before descending among the scenes that still speak of winter-beaten experiences. For the first week or more subsequent to their arrival, they frequent the tops of trees in village, city, and country, as well as the tops of outbuildings, continually warbling their sweet, tremulous strains. They seem undetermined whether to remain; and when we note their pretty habit of lifting their wings and trembling lightly on their perch, we sometimes fear that they are about to rise and leave us only the memory of their visit. How restless they appear as they uneasily shift their stations! What a contrast their unfamiliar behavior presents to their well-known confidence when they are prepared to select a home and assume the duties of rearing their broods!

It is during their dalliance in the "upper story" of their resorts that the bluebirds utter their strains with greatest persistency and tenderest expressions. Then their voices seem in perfect accord with time and place, aptly borne upon the genial breath of April, accompanying the quivering fervor of the atmosphere, and the quiet though rapid change of nature's habiliments. Even in its most energetic execution, however, there is a well-defined under-current of sadness in the flow of spirits. Indeed, every action of these amiable creatures is to me suggestive of trustful resignation to the hand of sorrow. I must ever compare the gentle, even-tempered demeanor of the bluebirds to the conduct of those persons whose lives have been chastened by some deep-reaching force, and whose brightest smiles are yet brighter in their undefinable trace of sadness. It seems to me that much of the charm in the manners of the bluebirds lies in the air of pensiveness ever expressed in their actions, and voiced in

the touching sweetness of their familiar warbles. Who can think of associating gayety with the gentle deportment of our April favorites? Or who would fancy that their warbles are prompted by the gush of spirit to which we attribute the utterances of others of the songsters? Indeed, our vocalists of the early springtime are all strangely plaintive in their best performances. Their voices are attuned to a common chord of minor melody. It is only in the lyrics of the songsters of the unbounded summer that we hear expressions of real cheer and gayety.

The period of bluebird courtship begins in the upper regions, and is continued with their gradual descent to the lower levels of their resorts. Their pretty exchanges of vows of love and honor warm them to greater animation, and they show more of the old confidence and familiarity, having no longer the inclination to drift upward from us into their ethereal castles. They are thinking of establishing homes, and hence they drop lower from time to time, and inspect the fence-posts and trunks of trees for suitable cavities for their use. They now revisit the boxes provided by the children or kind-hearted bird friends for their use, and explore the recesses of out-buildings, becoming more eager and demonstrative in their gallantries. Crevices in barns, granaries, and porches are peered into as promising snug sites for their establishments, and many musical conversations and twittering quarrels occur before the selections are made.

Even to the superficial observer there is a curious parallelism in the lives of the birds and men, and a meditative mind can perceive resemblances to all phases of human experience in the daily lives of our feathered friends. Marriage has widely divergent results upon the characters of different individuals, and in a similar sense the mating time is a transitional period in the habits of many species of birds. Some become more cheerful as the duties of home and family increase, and they daily find added inspiration for their songs. Others no longer exhibit their wonted vivacity, but to the world are dull and reserved—strangely unlike the promise of their earlier days. The bobolinks are a notable example of the latter class, and the bluebirds are equally remarkable for their

loss of inspiration to musical expression when their homes are fixed. With the beginning of the nesting season their warbling becomes less frequent, and is executed in a more subdued, deeper note of tenderness, being seldom heard except at early morning or late in the day.

The nesting habits of the bluebirds are matters of common knowledge. They formerly, with the purple martins and the house wrens, inhabited apartments in the boxes in the garden. Frequently the martins retained one side or story of the box, and the bluebirds occupied another division. The conflict with the English sparrows, however, proved so sharp that our gentle bluebirds, who are seen to have courage and endurance when they wish to display it, saw fit to withdraw from the unpleasant dispute. Now they content themselves with the cavities in decayed fence-posts and other sites farther from our towns and dwellings. While the martins and bluebirds did not live in uninterrupted peace, both were indigenous to the locality, and the balance had been adjusted between them, so that their petty quarrels never became a severe struggle for survival.

The nest is composed of dried grass. It is lined with hairs and feathers, and is constructed with varying degrees of compactness. The eggs number from four to six, and are of a uniform pale blue color. Sometimes pale white eggs of the species are found. Davie gives the average size of the eggs as .84 by .62 of an inch.

When we consider the strong maternal instinct of the bluebird, we have a partial explanation of the abrupt termination of its former habit of song. Its jealous care and deep-rooted love for its mate and home lead it to refrain from any utterances which would reveal the secret it chooses to button so closely under its ruddy cinnamon vest. And yet how frankly and confidently it nests in the most open cavity in a post or stake, obviously conspicuous to the eyes of observant passers-by! This openness and confidence have led to its utter sorrow, for few birds suffer the disasters which overtook the nests of the bluebird in the days when it was commoner than at present. It seems, however, that it has been wisely taught by its bitter experiences. Now it retires farther

from the range of the wandering small boy, and chooses the site for its nest along country rail fences, retired roads bordering wood patches, and cavities in trunks and stumps in the woods.

When its home is disturbed, the bluebird displays unusual resolution in sharing the fate of its household. Once a friend and myself attempted to examine a cavity in a fence-post near a stumpy meadow. A female bluebird was sitting upon her eggs in the cavity, and she persistently declined to leave the premises, even in the face of the threats we hammered against the post. By enlarging the cavity we were able to reach her tail with our finger-tips, but she clung the closer to her nest, until she parted with several of her tail feathers, and we desisted from thus marring her appearance. Not until she was lifted from the eggs did she flutter to escape. Visiting the nest several days later, we saw five young birds,

“* * wide-mouthed to every shade
By which their downy dream is stirred,
Taking it for the mother bird.”

Succeeding observation traced their rapid growth and departure from the defaced cavity, and their lessons in foraging for grasshoppers among the stumps of the pasture.

This elegant and highly valuable species is generally less common than it was twelve or fifteen years ago. The sparrows have appropriated the sites formerly used by the bluebirds, until it is exceptional for the bluebirds to nest in villages, cities, or suburbs. In former days nearly every suburban orchard had one or more pairs of bluebirds nesting in cavities made by woodpeckers in the trunks of the apple trees; but the ubiquitous sparrows have extended their range even to the orchards, and our friends must withdraw to the country and woods to rear their young in comparative peace. Along the railroads, in the earlier part of the summer, they usually can be seen sitting upon the telegraph wires. Upon one's approach they will fly to a perch farther along the wire, or fly around to a position behind the observer. When an insect on the ground attracts their attention, they fly to the ground, secure their prey, and, after a momentary pause, return to their perch, uttering their soft, pleasing

warble, to swallow the food at their leisure. Later in the season they resort in families to meadows, pastures, and stumpy woodlands, to feed on the grasshoppers, crickets, and other insect food abundant in such places.

In his report concerning the food of the bluebird, Prof. S. A. Forbes states that seventy-eight per cent. of its yearly food consists of insects, eight per cent. of spiders, and the remaining part principally of vegetable food. Other observers report that it feeds on the berries of the black and the white mulberry, and it is said to swallow entire fruits of the sour-gum (*Nyssa*) and the flowering dogwood. As great numbers of seeds of the poison sumach have been found in its stomach, it is possible that the bluebird and other birds of similar food-habits may be instrumental in spreading these and other poisonous plants.

While we turn our ears expectantly at the breaking of winter to catch the sweetly plaintive melody of this hardy bringer of good tidings, we are no less eager to hear the more chastened plaint of our favorite in the closing days of the season. Through the brown summer time and the tinted autumn period we have almost ceased to hear the saddened notes, and only occasionally, when the birds were passing overhead at early morning, were the tender warbles dropped like benedictions upon us. We begin to fear that an untimely blast of winter will presently silence the voices heard so rarely, and we select a typical morning in late autumn to visit the woody pasture which we know to harbor the few remaining individuals. Robins are congregating in the trees which support the clambering grape-vines, and are feeding on the black fruit. Other species are visiting the stores of food, or whisking about in the bushes, uttering their farewell calls prior to their departure southward. The clinking notes of the "peabody birds," or white-throated sparrows, and the clear "ch-wink" of the towhees arise from the brush. From the trees come the sharp salute and frequent drumming of the woodpeckers. But dearer to our ears are the voices which have lured us afield so early, as they float down from the higher regions, and we see the forms of our gentle friends who are lingering to brighten the last few days of dying autumn. Some of them fly over us high in the air, ap-

prising us of their movements by their few short warbles. Others appear in the summits of the trees, occasionally fluttering to a lower site for a brief time in their pursuit of insects, but making the tree-tops their headquarters. Having heard their charming warbles for the last time, and having watched their movements until they shift their stations from our view, we turn our steps homeward, knowing that when the invigorating breezes come from the southland another season they will bear upon their bosoms the birds which drear winter drives from our midst.

HOUSE WREN.

The lively movements of the house wrens give a higher degree of animation to the scenes of the orchard, and the little busybodies are ever attracting our attention by whisking about the trunks and branches, and entertaining us with their constant chatter. Into the heaps of fallen brush they disappear, and through the interstices they thread their restless way. At our approach they whirl away almost from under our feet, scolding energetically at our invasion of their domains. It is true that they utilize the nooks and crevices of outbuildings for their habitations, but they are quite at home in the orchard, and we find many cavities partially filled with dead sticks, carried by the ever-active males.

There are very few persons who have no opportunity to learn something from observation concerning the habits of the wren, for it dwells in the villages and cities, and frequently builds its trashy nest within easy reach. It is one of the familiar species, and with the robin and the bluebird it claims a generous share of our regard. By its cheerful, gushing songs during the nesting season, by its ceaseless search for noxious insects, and by its many interesting traits, it fully compensates our care in providing it a convenient box for a summer home. Its activity is remarkable, and we can not fail to admire its familiarity and fearlessness, though the latter often leads it to assail its neighbors, the bluebirds and martins, in their strongholds, and even to drive them from their homes and take

possession of the premises. We are accustomed to its emphatic scolding and its agile movements; hence we are not surprised to see it whisk from the shrubbery or from beneath the sidewalk, and thence disappear around a tree-trunk or among the foliage of the larger trees. Yet anywhere it will pour forth its cheerful gush of song, regardless of one's presence, and for the entertainment of nobody except itself.

The house wren inhabits eastern United States and southern British Provinces, ranging westward in the north to the Missouri River, and in the south to the Great Plains, being migratory in the northern portions of its habitat, and breeding throughout its range. In "Natural History Survey of Illinois," Vol. I, Robert Ridgway says: "The house wren is, for some reason or another, very rare in many parts of southern Illinois. Indeed, during the writer's residence in Wabash County, he never even heard the note of an individual of this species, its place being taken entirely by Bewick's wren. In the neighboring county of Richland, however, the house wren is not uncommon in some localities, but the other species still largely preponderates in numbers; and the same is the case in Knox County, Indiana, in all localities where the writer has been able to make observations. To the northward the present species gradually increases in abundance, until finally, in the northern counties of the State, the proportional representation of the two is reversed."

On their return from the South, the house wrens reach our latitude from March 20th to April 12th, the males usually appearing in advance of the females. As is noticeable when the sexes travel northward separately, the individuals that arrive earliest are less vivacious and musical than when the presence of the fair sex evokes their best manners and their most brilliant execution of song. The first arrivals seem to shun the society which they seek several weeks later, haunting the low bushes and shrubbery; and it is only when the females are present in numbers, toward the latter half of April, that both sexes exhibit their full sprightliness, impudence, restlessness, and musical ability.

The usual nesting-places of the house wrens are nooks

and cavities in buildings, boxes, tree-trunks, stumps, and fence posts. They often pile their trashy material between a window-sash and the blinds, entering between the shutters. I knew a pair to make a nest in an old tea-pot, which hung against the side of a house, under a large porch. For several years a cavity between the window-frame and the brick wall, in the upper story of a public school building, was transformed into a convenient home for a family of wrens, the entrance being too small to admit the sparrows, which frequently essayed to take possession. A pair of wrens once laid claim to an empty shot sack hanging under a porch of a farm-house, and refused to be dispossessed, even after their work had been thrown out twice by the farmer's wife. They finally reared a brood in the third nest made in this odd site. Another pair of wrens found an opening into a bag of feathers hanging in a porch, and in this downy retreat reared a brood before the owner discovered the intrusion.

Cavities about porches, mortise holes in beams of barns and out-buildings, and knot-holes in orchard trees—in fact, any nook whose entrance will not admit the house sparrows that might attempt to take up a prior claim—may be chosen by the wrens, and filled with dry twigs, feathers, gossamer, and dried grass, with feathers for lining. Their spirit of incessant activity prompts them to fill other cavities near their homes with dry sticks. A pair of wrens will take possession of several boxes put up for the use of these birds, and will spend some time in lugging into each of them twigs and feathers, though only one nest will be finished and occupied. Some careful observers of bird ways aver that the male continues to carry sticks into cavities after the female begins to incubate, and thus he has several nests in process of construction. A naturalist friend of mine, however, who seldom makes a mistake in observation, asserts that the male begins several nests in different sites; and when proposing to his fair one, he invites her to inspect his different properties; and if any of them pleases her fancy, she accepts his proposal, and the pair take up housekeeping in the favored location.

The complement of eggs varies from six to nine. The

eggs have dots of brown and reddish, often distributed so evenly as to give the impression of these colors, though the ground color is lighter. The nesting season is frequently prolonged into August, as two and three broods are regularly reared each season.

The best songs of the wren are probably heard after the birds are happily mated and the female has begun to deposit her eggs. Then the happy male whirs to a favorite station, usually on the gable at the extremity of the ridge-pole of a house or an out-building, and there, with tail nearly vertical and head thrown back, he expresses the overflowing happiness of his lot. The song is a merry little roundelay—a forcible, voluble gush of hurried contentment. The performer does not remain long in one place, however, and soon jerks himself along the ridge-pole, or down the gable side, or flies into the lower branches of a neighboring tree, where he chatters with vigor as he whisks himself in and out of view among the foliage. Now he is on the ground, hopping among the dried leaves and shrubbery, or rummaging under a pile of old rails, and turning up in the most unexpected places. From roof to tree, from tree back to roof, from roof to the ground, in and out of the bushes, he is ever on the move, seemingly busy, but seldom carrying to completion any of his plans. He is perfectly at home among the stems of the weeds in the pastures, and he clings to the culms with the agility of his relatives, the marsh wrens.

Quite in contrast to the custom of many of our feathered neighbors, the wren does not cease to utter his measures of happiness after the cares of home and offspring begin to curtail his leisure time. He waits upon his mistress, brooding upon her speckled treasures, as merrily and gallantly as he courted her, and never, after carrying her a choice morsel, does he leave her without going to a favorite perch and hurriedly chattering his heartfelt satisfaction. Not until he has escorted his youngsters to the hedges and weed patches, and taught them to earn their livelihood, does he cease to give outward expression to his happiness.

One fortunate summer a pair of wrens established themselves in a cavity, about twelve feet from the ground, in a

maple tree near my study window. I have said it was a fortunate summer, but I might with more propriety say that I was fortunate, for my willing ears were regaled, early and late, with the ringing roundelays of the happy householders. The regularity of the merry measures soon taught me to miss them if the interludes were prolonged by some capricious movements of the songsters that kept them from their favorite stations. The voice of the male was extraordinarily clear and vibrant, and his regular practicing, added to the increasing delights of his matrimonial life, daily gave more finish to his execution and power of song. At the threshold of his feather-lined home he regularly chanted a delightful measure before he disappeared through the tiny entrance. Scarcely had he whirled from its portal upon his departure ere he rang his tuneful round. If ever a tree of that dimension became vocal with the performances of its feathered tenants, that old maple was given over to the spirit of song, the restless musician being indeed the fairy which gave animation to the sturdy form until it seemed to whisper words of inspiration to passers-by. Like the wood pewee, the indigo bunting, the chipping sparrow, and others of the birds that protract the nesting season, the house wren becomes more melodious as its embryonic brood develops and thrives, and its loving service in behalf of its family is accompanied by more powerful and expressive measures of unalloyed happiness.

When the young wrens have been taught the practical art of insect-catching, they resort to the woods and hedges, frequenting high weeds, bushes along streams, and thickets of any sort. Walking along a hedge with dense foliage, late in summer or early in autumn, one may remark the wrens whisking silently in and out, and diving suddenly into the weeds and bushes. If the adults are not rearing additional broods, they also can be found, in company with their offspring, scolding, with characteristic captiousness, at the disturbers of their privacy and woodland foraging. Their merry rounds of melody are over for the summer, and in this manner they wait for the time when instinct will lead them to warmer climes for their winter's sojourn.

The wren is almost exclusively insectivorous, and

spiders and thousand-legs make up the balance of its bill of fare. It is especially fond of canker-worms, and its presence in the orchard can be accounted for when these pests are abundant. We see that the horticulturist has an indefatigable ally in the person of this diminutive worker. Not only among the trees, but among the bushes also, where noxious insects are at work destroying the growth of the various fruits in their seasons, we can trace the valuable services of the wren. Destructive larvæ of moths and butterflies, gnats and flies, ants, beetles, and bugs—especially the dreaded chinch-bugs—all are regularly found in the bill of fare of our active little friend. When the farmer evicts the wren from his porch or well framework, because he objects to the litter of sticks dragged to the place, he is driving away an ally with whose services he can not well dispense.

CHICKADEE.

Another diminutive resident of the orchard, scarcely larger than the house wren—a veritable hop-o'-my-thumb—is the chickadee, or black-capped titmouse. Perhaps no bird is a more common favorite among lovers of bird-life, its trustfulness and love of companionship being so great that it rarely fails to approach the observer when its plaintive "pee-wee" is imitated. Especially in the fall and winter is it easily called by these syllables, whistled with the first considerably lengthened, and any schoolboy whistler can easily catch the spirit of the call. I remember an occasion when I was leaving my home to go to the public square of my native village, I heard the notes of a chickadee half a block away, and immediately responded to the call, repeating it as I passed along the street. Soon the little fellow was after me, and at one time perched on a low twig of a small maple, so close that I involuntarily put out my hand to touch him. He followed me until I passed upon the busier thoroughfare, and only ceased to follow when I discontinued my call.

Once upon a frosty morning, when I was on my way to the school building where my vocation called me, I heard

the call of a lonesome chickadee issuing from a small tree in an adjoining yard. Though I could not at once perceive the author of the notes, I vigorously and regularly whistled in response. Soon the call was uttered nearer to me, and as I passed on my way the little creature flitted from tree to tree after me. When I reached the school grounds, I stopped under a small tree, and in response to my whistling the confiding wanderer flew into the tree, hopping joyfully from twig to twig, in hopeful anticipation of congenial companionship. Soon I ceased to respond to his friendly good-mornings, and walked away from the tree. At once he changed his tone to a sweet minor, so expressive of disappointment and loneliness that fellow teachers who had witnessed the closing scenes immediately noted the sudden modulation, and censured me with the remark: "Why, you ought to be ashamed of yourself to mislead the lonely little fellow, when he expected to find a companion. Just hear how disappointedly he calls!"

Birds come and go, but the chickadee we have always with us. No blast is severe enough to drive it from our door-yards, and in the face of the falling snow its "dee-dee-dee-dee-dee" comes to our ears as we sit in our cozy rooms longing for the spring sunshine. Even on those dreariest of rainy winter days, whose steady drizzle would be supposed to check the activity of even the most venturesome of the feathered residents—days whose dullness causes us to con our old note-books in memory of brighter scenes—we hear the merry "chickadee purrt" of our undaunted little visitant. Hastening to the window, we see him in a near apple-tree, clinging head downward and tail up, as he pulls a lurking tidbit into the light and quickly devours it. Wiping his bill upon the dripping branch, he chatters his satisfaction, and then hops to a neighboring limb to continue his search for a dinner and supper combined. He then flits across the tree, and perhaps back to the nearer side, occasionally uttering his bright ditty—always contented, come rain, come snow, and consequently always joyous.

While the chickadees are essentially birds of the woodland, they are by no means rare in our towns; for trees

and shrubbery are the only requisites of the neighborhoods they frequent. Almost every orchard has its pair of these valuable birds. They are permanent residents, and can generally be seen at any season hopping about in our garden trees and in our door-yards, stripping the trees of insects, and searching in all likely places for food morsels, now and then chattering their "chick-a-dee-dee-dee-dee-dee." They have a noticeable habit of hopping "right-about," flirting their tails and perking their heads in accompaniment to their single "dee," as their quick movements carry them from one portion of the tree to another.

The habitat of the chickadee is northeastern North America, extending westward to the great plains, and southward through the Middle States. In Illinois the range of the chickadee seems to be limited to the northern half of the State, for it is known only as a winter visitor in the southern part, or below the thirty-ninth parallel, and coming only at irregular intervals in very cold weather, according to Robert Ridgway. In the southern parts of the State, however, is the Carolina chickadee, very similar in coloration and habits, and differing only in its smaller size.

In its food habits no bird renders more valuable service to man in checking the spread of noxious insects than the active, diminutive chickadee. The destructive canker-worm forms a large part of its yearly rations, and few birds scan the bark of trees so closely for eggs and larvæ hidden there, eating away the life of their host. Its service for us continues through the year, nor does it exact in return any portion of the ripening fruit, but confines its diet largely to insects, with a few seeds, and the scanty gleanings from our door-yards in winter.

In central Illinois the chickadee begins to nest early in April. It apparently considers that its valuable services can be dispensed with at this season, for it does not regularly remain about the gardens and town to rear its young. Among deeper woods and in more secluded localities it finds the environments suited to its disposition, and there it establishes its summer home, seeking its food near its domicile, and seldom visiting the village or city

until its young are fully able to cope with the realities of life. One or more families will certainly be found dwelling within the limits of the farm orchard. However, the chickadee is not fond of the society even of its own kind in the nesting season, and displays no spirit of community in choosing its home.

There are occasional instances of its nesting among busy scenes. Once I was agreeably surprised to chance upon a chickadee industriously boring a hole in a fence-post along the street where I passed every day as I walked to my work. Though the outer layers of the wood in the post were rather firm, the inner part was less tough, and the small, sharp, conical bill of the determined little laborer was making surprising headway in excavating the desired site. I marked the progress of the work with increasing interest, and four times a day I would quietly inspect the latest improvements in the forming cavity. In less than a week the fastidious taste of the master builder was satisfied, and the happy pair proceeded to take possession, though they loitered several days after the excavation was finished before they moved in their effects and began housekeeping in earnest. Their newly-found joy was short-lived, however; for scarcely had the first egg been deposited ere the prying eyes of small boys in the neighborhood fell upon the exposed portal. On my next visit I found the nest torn out and the excavation wrecked—a sad warning to all chickadees and other birds which place their trust unreservedly in humanity.

The mother chickadee has a strong love for her home, and she will usually remain with her treasures even to her own hurt. One summer I was spending a day in early May in the woods, and chanced to stroll into a piece of swampy, dense timber bordering a creek. A cavity in a low, decayed stump attracted my attention, and I tapped vigorously below the small circular entrance, to frighten and drive out any occupant of the recess, but no chickadee appeared in response to my knocking. The stump was so badly decayed that my thumping on the exterior caused the wood-dust to drop from all sides of the cavity into the bottom. Deciding that the woody tenement was not occupied—for the season was almost past

for a chickadee to be rearing a family—I tore away the bark near the entrance, in order to examine the premises. When I uncovered the recess sufficiently to admit the light, I saw a pair of bright eyes directed upward, and the head of a chickadee projecting from the rubbish which fairly covered her body. She was nearly smothered with the dusty material which had fallen on her, and was sputtering the disagreeable stuff from her mouth and nostrils. I gently removed the debris from about her, and not till then did she start from her furry bed, whereon lay four eggs, glossy white under their reddish specks. Repairing the damage somewhat, by cleaning out the fallen dust and replacing the bark which had covered the recess, I left the spot with the mournful and appealing “dee” of the anxious parent coming to my ears. At a suitable distance I watched the mother bird hopping about the premises, gradually nearing her outraged home, until she finally flitted into the recess, and there I left her, feeling that such maternal devotion deserved more than ordinary consideration.

Any suitable cavity in a stump, post, branch, or tree-trunk may be appropriated as a nesting site, usually one made by the downy woodpecker or the white-breasted nuthatch in the preceding autumn or winter. If no suitable hollow is found, the chickadee excavates one to its liking. Like the bluebird, it may be found nesting in hollow fence-posts along railroads. The cavity is commonly about six inches deep. The nests are made of fine hair, several that I have examined being made entirely of rabbit fur, arranged into a cozy bed. Fine dried grass, moss, feathers, and fibers are also available materials for this little builder. The eggs number from six to eight, and are white, sprinkled with reddish brown. Davie says their average size is .57 by .47 of an inch.

Our readers who are not familiar with the appearance of the chickadee can identify it by its ashy gray back and the ashy gray or whitish abdomen, and more directly by its black crown, chin, throat. Its length is about five and one-fourth inches, with an extent of wing of about eight inches.

KINGBIRD.

Few birds are better known to the boys and girls whose homes are amid rural surroundings, than the noisy and pugnacious kingbird. The orchard is his little kingdom, and over it he exerts a regal sway. With most of his subjects he is roughly good-natured, but he is extremely jealous of his prerogatives, and does not hesitate to support his pretensions with a goodly show of force. Trespassers upon his territory are caused to regret their temerity, especially those which insolently depend upon their superior size for immunity from his attacks. Few enemies of his are so large that they can dismay this bold defender of his domains, and his impetuous assault is certain to overwhelm either hawk, crow, owl, blue jay, or other evil-minded intruder upon his claimed limits.

The kingbird prefers to fight on the defensive. Seeing an approaching enemy, he sallies forth from his watch-tower in the summit of an apple-tree, and engages in battle in mid-air. Quickly gaining an advantage by mounting above the unlucky crow or hawk, he fiercely dashes downward upon the back or head of his adversary; and striking with his stout, sharp bill, flutters away and upward to continue the attack. The intrepidity and sharpness of his attack are likely to dishearten even bolder birds than those he usually quarrels with, and the result of the encounter, if such a one-sided affair can rightly be called by that name, is seldom in doubt for even a moment. He does not commonly attack his enemy at rest, nor does he often pursue the object of his animosity very far, being satisfied when he has driven the offender beyond the limits of the orchard or yard in which the kingbird has taken up his quarters.

The pugnacity of the kingbird is accounted for by most writers on the ground of strong maternal instinct. My observations, however, lead me to say that his overbearing spirit is apparent at all times. Late in the summer, when the nesting season had passed, I once saw a kingbird, which was seated on a telegraph wire, maliciously attack a robin that alighted on a wire more than

a hundred feet distant from him. The robin retreated along the wire and alighted at a greater distance from the aggressor; but the overbearing disposition of the latter prompted him to make another unprovoked and unnecessary attack upon the unoffending robin, and drive her squeaking loudly over the bordering meadow. Once in August a kingbird that was perched on the telegraph wire ahead of me audaciously attacked a young red-headed woodpecker not yet in permanent colors, which alighted on a pole near the tyrant, and quickly put the astonished youngster to flight, pursuing it viciously over an adjoining lot.

It may be true that the kingbird has hereditary enemies which he attacks at sight, but he seems to rank naturally with tyrants and pugilists. He will certainly defend his home and family with boldness and spirit, but he is also a tyrannous fellow for mere love of tyranny, and his reputation should be whitewashed by no excuses. He is too suspicious of the intentions of his neighbors, and often might avoid a quarrel by quietly attending to his own affairs. Once in the conflict, however, his reckless daring and invincible spirit are worthy of admiration, and to his credit it may be said that his battles are usually with the larger birds and the known enemies of his more helpless fellows. The birds which he attacks are generally known to harry the nests of the smaller birds, and the kingbird frequently saves the homes and families of many residents of the orchard by thus driving away felonious bird-tramps before they even enter the premises.

The harsh notes and twittering cries of the kingbird are doubtless as familiar to the residents of the rural districts as the bird itself. It has no real song, since it lacks the singing apparatus with which the *Oscines* produce their musical tones. However, it utters a short series of forcible sounds, forming a loud, sharp twitter, without which no orchard would be complete and which is not really unpleasant, though it has the element of harshness possessed by all the utterances of the clamatorial birds. These twittering expressions of its emotions are uttered by the bird when seated on any favorite perch watching for passing prey, or when on the wing,

and are heard chiefly in the mating and breeding season. Its notes are fewer and less forcible after the home circle is broken, and the youngsters become independent members of avian society.

The kingbirds are fond of telegraph wires along railroads, from which they can dash out to secure insects whirring through the air. Summits of small trees, and especially the tops of vervain and mullein stalks in pastures, give them commanding points from which to await the appearance of their prey. In taking their food in the air they usually fly outward and upward, often twenty or thirty feet, and return with it to the same or a similar perch. They feed chiefly on insects, taken almost exclusively on the wing. Their popular titles of "bee bird" and "bee martin" suggest that they are responsible for the decrease of the inhabitants of the apiary; but they probably have no special relish for bees, and in their behalf Dr. Elliott Coues says that they destroy a thousand noxious insects for every bee they eat. The apiarian can certainly afford to keep a few additional hives of bees for the use of these birds alone, in return for their preservation of the blossoms and flowers by the destruction of insect pests.

Mr. Samuels, in his "Birds of New England," speaks thus on this subject: "The food of the kingbird consists mostly of insects, which he captures usually while on the wing. It seems a provision of nature, that all the fly-catchers shall only take those insects that have taken flight from the foliage of trees and shrubs, at the same time making the warblers and other birds capture those which remain concealed in such places. The kingbird, in seizing a flying insect, flies in a sort of half flitting hover, and seizes it with a sharp snap of the bill. Sometimes he descends from his perch, and captures a grasshopper that has just taken a short flight, and occasionally seizes one that is crawling up some tall stalk of grass. Those farmers who keep bees dislike this bird, because of his bad habit of eating as many of those insects as show themselves in the neighborhood of his nest; but they should remember that the general interests of agriculture are greater than those of a hive of bees."

The kingbird is a summer resident in eastern North America, ranging to about fifty-seven degrees north latitude, and westward to the Rocky Mountains, and irregularly in northwestern United States. Its winter home is in tropical regions, including the Bahamas and Cuba, and extending southward to Bolivia. It reaches central Illinois about the twentieth of April or a little later, announcing its return to the orchard by its squeaky, twittering cries, and at once resumes its accustomed place as a long-absent sovereign. At this season of the year it can be seen very frequently in pastures having bunches of weeds on which it can perch, rising repeatedly with its rapid twitter in pursuit of its food. Thus it dallies for several weeks before it prepares for the stern duties of nidification and incubation.

The situation of the nest is generally an upright fork in the main portion of the tree, near the top, high trees being seldom chosen in which to build, unless along water-courses where smaller trees are not available. The construction of the nest is a work involving much contention and conversation between the pair of builders, and, as is usual in such instances, the female does most of the work and the male most of the talking. The nest is made of coarse materials, such as weed stems, fibrous roots and bark, rags, strings, feathers, and other soft material, with finer rootlets and stems for lining. The complement of eggs numbers from three to five. Their ground color is white or creamy white, and they are spotted irregularly and brightly with large blotches and markings of umber and chestnut. Davie gives their average size as .97 by .70 of an inch.

Most of the birds that are disposed to be imperious among their neighbors are seen to be patterns of amiability and tenderness in their home lives. We have elsewhere referred to the conjugal affection noticeable in the private life of the shrike. The meekness and patience of the kingbird in its home are in striking contrast to its irritability among its neighbors. Is it possible that our tyrant is a hen-pecked husband, and that his overbearing disposition is over-matched by that of his high-spirited dame? Surely not, for his faithful, affectionate service

for her could not be prompted by such an unworthy motive. If he is a good hater of his imaginary enemies, he is an equally ardent lover, and his jealous attendance upon her in the time of nest-building springs mainly from the depth of his passion. Few heads of families in the orchard colony are more faithful in caring for the wants of their callow broods, and his upward dashes in pursuit of insects are more energetic and vigorous from the paternal love animating his every movement. Over the meadow he gleans with greater earnestness to procure the tidbits his nestlings fancy, and in their first lessons in *tyrannical* ways he exhibits the tender devotion of the most loving bird parent.

Why the kingbird should have been invested with royal attributes by some one in the distant past is not clear. As we have said, he does seem to rule over his orchard domains, but it is only a dominion of might. Nor is he an uncrowned monarch; for when he becomes jealous, and sallies out to repel any trespassers, he displays his royal insignia—a low crownlet encircling a hidden pompon of orange-red—and thus he seems to have some natural ground for his pretensions. As he is usually victor in the sharp encounters which ensue upon his fierce sallies, his title may rest upon the pugilistic championship which it seems that he has fairly earned. However, wise men have sanctioned his claim to the title, and it might be unbecoming in us to derogate from his kingly honors. Yet in his generic name of *Tyrannus* they have recognized his tyrannical disposition; not once, but twice, for he must be named *Tyrannus tyrannus*, which undoubtedly makes him the tyrant tyrant. Yet we remember that in the time of the ancient Grecians there were tyrants who were thus styled because they obtained and held their power illegally, though some of them ruled wisely and well. Shall we not thus define the term which characterizes this petty sovereign? And when we have occasion to employ the term in connection with the kingbird, let us consider it in its primitive meaning, and thus our charity will in this, as in all other instances, cover a multitude of sins.

BRONZED GRACKLE.

None of the residents of the orchard is more abundantly represented or more noticeable in its vocalism and movements than the bronzed grackle, or blackbird. The family *Icteridae*, with which the bronzed grackle is connected, is eminently noted for its showy and handsome species, or for the otherwise attractive characteristics of its members. It contains the sub-families of the so-called American starlings, the so-called orioles, and the so-called grackles or crow-blackbirds, each group mentioned having been accorded a conspicuous place in literature or in the estimation of the naturalist. The bronzed grackle is by no means unworthy a place in the notable gathering including the Baltimore and orchard orioles, the meadow lark, the bobolink, and their well-known allies. Its habits, however, are apparently inimical at times to the interest of the farmer and gardener, and have done much to render unpopular a species which in form and appearance is little inferior to the most gifted of its relatives. Its occasional havoc in the growing crops and among the ripening fruit has caused the farmer to overlook the valuable services of the grackle at the time when its assistance is indispensable. Thus the grackle has been brought into bad repute, and it is disliked and persecuted in consequence. Yet, in spite of the persecution it receives from various sources, the number of individuals has not apparently lessened, and every recurring fall the usual long flocks can be seen flying to their accustomed roosting-places.

In my boyish days, the coming of the bronzed grackles after the breaking of winter filled me with delight, for I learned to regard them as the surest heralds of the approaching spring. Scarcely had the snow disappeared from the fields, and the first faint hues of green tinged the warmer knolls and dryer spots of the meadows, ere the first groups of grackles took possession of the tops of the maples, and announced their arrival in their loud but not unmusical quiscaline jargon. I loved to hear

“* * the blackbirds clattrin’ in tall trees,
An’ settlin’ things in windy Congresses” —

a familiar proceeding in the movements of the grackles. The bluebirds, song sparrows, robins, and meadow larks were the only migrants which preceded the bronzed grackles, and were frequently driven back temporarily by cold blasts. The grackles, however, seemed more weather-wise, and hence I eagerly watched their coming.

At my home in central Illinois, the grackles have appeared as early as the 17th of February, though we commonly notice the first migrants about the end of the first week of March. They are not long in settling themselves in their regular resorts, and thenceforth their noisy demonstrations are part of the ordinary life of the locality. They are at home in the tall maples along the streets of the towns, in the evergreen trees of the lawns and gardens, and in the groves and orchards of rural districts. The woods and groves of the bottom lands along the rivers become their popular resorts, and the willow borders of the streams and swamp-lakes are usually well populated by the noisy creatures. Their gregarious nature is observable even in their nesting habits, and wherever circumstances are favorable they may be found nesting in colonies containing hundreds of homes.

The ubiquity of the grackles is naturally due to their varied accomplishments and many-sided character. They take as kindly to the water as the sandpipers, their elongated feet and tarsi giving them facility of movement in the shallow water of the margins of creeks, rivers, and lakes. I have seen them standing and wading in the clear water of shallow ripples, dexterously catching the foolish minnows that sported within reach of their long, strong bills. There rises before me a picture of a woody glen, shaded upon one side by an overhanging wall of rock, along whose base there purred a shallow streamlet. This glen was indeed a haunt for the grackles and myself, and many pleasant hours have I spent watching the dignified fishers as they stalked through the ripples with quiet, leisurely movements. Every wide-awake boy of the farm knows that the grackles which he surprises along the muddy margin of the little pond in the pasture are there for business, and not merely for pleasure; and he will further inform you that the crayfish which lie in

the hollows along the margin have allured the grackles thus to add to their larder, though they go home at night-fall with muddy feet and bedraggled plumage.

Good, experienced woodsmen, too, are the grackles. No small boy is more familiar with the resources of the woods, and even he is unable to pick nuts from the extremities of the twigs like the agile grackles. They also know

“Where the freshest berries grow,
Where the groundnut trails its vine,
Where the wood-grape's clusters shine.”

And hence we find them clattering as volubly and living as bountifully in the woodlands as in the swamps—equally at home in the farm orchard and in the city streets.

The early spring life of the grackles is well known to the boys and girls of the farm and country towns. They are frequent foragers about the corn-crib and the barn-yard, and they procure much of their living from the open fields and meadows, making the trees about the orchard the scenes of noisy and garrulous gatherings. They are extremely sociable, and evidently prefer a voluble chat with several of their companions to the duties of replenishing their larder. However, they are seldom pushed to supply their wants, as their regular food is obtained with little effort. In their nesting-places they seem to spend very little time in incubating, and are doubtless upon their nests only enough to insure the safety of the eggs, visiting from one tree-top to another, and calling with their loud metallic notes to their friends about them.

We ornithologists are inclined to smile at the somewhat pompous actions of the male cowbirds in executing their shrill whistles in the springtime. The male grackles would appear no less ridiculous in their efforts to vocalize their grating phrases through their seemingly rusty pipes, were their appearance less splendid and their air less serious and dignified. They begin their calls with a clear, rather sweet note; but their vocal cords seem to become lax or thickened in the midst of the exclamations. To finish the performance, they puff out their feathers, slightly spread their wings, and partly expand their tails,

seeming to lift themselves somewhat on their perch, and by these efforts they force the remaining two notes of the phrase to successful issue.

The grackles visit the path of the plowman in the early spring, gleaning from the field ahead of him, and searching the furrow in his wake for the grubs and larvæ uncovered with the rich loam. Their visits to the corn-fields are not discontinued after the plowing, however; and in their eagerness to secure the lurking enemies of the tender blades, the grackles have been accused, perhaps with justice, of swallowing the sprouting grains of corn they frequently uproot. It should be said in their behalf that they only occasionally uncover the sprouting grain, and that it is done in pursuit of noxious insects, which would in their turn destroy many grains of corn. Any trivial injuries done in this manner by the grackles are so overwhelmingly overbalanced by their destruction of insect pests that they are certainly entitled to whatever occasional grains of corn they incidentally swallow. Their depredations in the standing crop later in the season, however, admit of active measures against them at that time.

The nesting habits of the grackle are supposed to be generally known; but I once had a grown-up companion who had never seen nest or eggs of this species until I pointed out the interesting object on a visit to an orchard. A large grove of osage orange trees near my home was a favorite haunt for a colony of these birds, and so numerous were the nests that several were frequently found in one tree, though some of the trees contained none. In almost every orchard where the birds are comparatively undisturbed, each tree will be found to contain several nests. In the bottom woodlands, where the standing water has deadened and decayed many of the trees, the grackles occupy the natural and artificial cavities in these hollows, even when living trees with inviting crotches are near at hand.

Groves or yards of evergreen trees attract the grackles; and as the tops of these trees hold the nests without giving the builders much trouble in attaching the structures, the coniferous trees are certain to be populated by them, whether in cemeteries or lawns, in town or country.

The grackles are early in their nidification, beginning about the middle of April. In 1882 I observed a pair of birds working on a nest on the 9th of April. This was exceptionally early, however. The grackles are very leisurely in their work, the female assuming the lion's share of the undertaking, while the male carries a few burdens and assists his better half by his presence and noise, and jealously guards the premises against the passing robins and other intruders.

The nests in the osage grove above mentioned were made entirely of coarse dried grass, lined with a finer quality of the same material. In the bottom lands the walls of the structure are frequently formed of damp, muddy grasses, giving the nest the appearance of having mud walls, and sometimes the sides contain a large amount of mud. Where the material can be obtained, the grackles work small bunches of wool into the walls, especially when there is mud used in the habitation. All sorts of trash are used in the nest, such as stalks of hay, bunches of string, and rags, the foundation of the nest being generally coarse pieces of muddy hay stems, and the lining soft dried grass.

The site of the nest is variable, and may be a horizontal branch, or a fork in an upright branch, or between upright stems, with no support except the friction between its sides and the surrounding limbs. The nests are found in low and high situations, varying from six to thirty feet from the ground, the majority of them being about fifteen feet from the surface. Davies says that the eggs are light greenish or smoky blue, with irregular lines, dots, blotches, and scrawls distributed over the surface. The average complements vary from four to five eggs, though sometimes six eggs are found in one nest. The eggs of the grackle average 1.20 by .82. In 1895 I found a set of five eggs of the grackle which were singular in their coloration. They were so closely marked with rusty blotches that the entire ground color was obscured, and the eggs were of a color resembling faded stains of blood, mottled with varying intensity. I have frequently seen single eggs of the grackle thus colored, but I have never seen another set so uniformly and so oddly marked.

It is at the close of the nesting season that the gregarious habits of the grackle are most manifest. Each little family attaches itself to a larger company, and immense flocks are formed by the consolidation of all parties in the neighborhood. These larger hosts occasionally break up into several smaller divisions, as their food habits call them apart to supply their needs. In the bottom regions of the Illinois River, along the shores of the swamp-lakes, I have seen flocks numbering many thousands settle to forage among the reeds on the moist, dried ground. When they were startled in flight by the report of a gun, or by other causes, the roar of their wings could be heard plainly across the lake, more than a quarter of a mile, and then frequently only a part of the flock would take wing at one time. These large flocks assemble chiefly at night-fall, and are the combined forces in the surrounding region; for the numbers are augmented as night approaches by new-comers which settle among the others feeding in the swamp. The presence of an available food-supply is the chief factor in the formation of these flocks; for where their food in season is widely and uniformly distributed, the extraordinary flocks are not seen. The bronzed grackles alone do not compose these immense hosts; for other migrating blackbirds, such as the red-winged species, the rusty blackbird, and Brewer's blackbird, swell the hordes preparing to return to their southern winter homes.

In the prairie regions of central Illinois the grackles remain generally until the middle of October, and in fact until the severe weather sets in, and they are frequently seen in small troops in the early half of November, when the weather has not been unfavorable. In the late fall they frequent the woods along the water-courses and the edges of ponds. When many are seated in the top of a large forest tree, their loud metallic notes, uttered in confusing time, form a pleasant jingling medley. Now and then some particularly gifted performer excites our admiration. Though the performance of one bird has been described as being somewhat harsh, when a number of individuals are practicing in confused medley the effect is rather pleasing than otherwise.

The grackle possesses a fine form, showy plumage, and is a splendid bird in appearance, though the colors of the female are less metallic and more modest than the brilliantly bronzed male in the vernal season. Walking on the ground, he is staid and dignified, and seldom loses his gravity of manner or presence of mind. He is never hurried in his movements, and will even take his time about stepping out of the way when he is foraging ahead of the approaching horses of the plowboy. Were it not for the general prejudice against the grackle, he would be found to discover many traits which we prize in other species, for he is an ornament to the garden and orchard and the shade trees of the street and lawn. His metallic luster shows in vivid contrast to the foliage green, and in the apple-tree, laden with fragrant blossoms, is as cheering and pleasing as the yellow of the warbler, or the rich colors of other species we greet with unrestrained praise.

The food habits of the grackle have done so much to bring the species into bad repute that I take the liberty of quoting from the Report on the "Crow Blackbirds and their Food," published in the Year Book of the United States Department of Agriculture for 1894. The author, F. E. L. Beal, says: "In the selection of food, the crow blackbird is almost omnivorous. Its partiality for corn, wheat, rice, oats, and other grain is well known, and is the cause of nearly all the complaints about its depredations. This diet is supplemented by various fruits, berries, nuts, seeds, and insects—the latter in large proportions. But the character of the food varies materially with the season. During the fall and winter, blackbirds subsist largely on seeds and grain; as spring approaches they become more insectivorous; in summer they take small fruits; and in September they attack the ripening corn; but all seasons they undoubtedly select the food that is most easily obtained.

"To this varied diet are due the conflicting statements respecting the useful or noxious habits of the species. When feeding on grain, the birds are usually in large flocks, their depredations are plainly visible, and they are almost universally condemned. When breeding, they are less gregarious, and the good work they do in the fields is



YOUNG ORCHARD ORIOLE.

From life. After Shufeldt.

scarcely noticed, although at this season the grubs and other insects devoured compensate in large measure for the grain taken at other times.

* * * * * *

“Upon the whole, crow blackbirds are so useful that no general war of extermination should be waged against them. While it must be admitted that at times they injure crops, such depredations can usually be prevented. On the other hand, by destroying insects, they do incalculable good.”

ORCHARD ORIOLE.

Among the gay spirits whose voices predominate in the orchard medley is one whose ringing notes have a familiar meaning, yet the lack of fullest richness and expression tells us that we must not look for the brilliant “fire-bird” of the Indians as the author of the music now floating to our ears. The tall maples and elms along the streets and in the dooryards have more attractions for the dashing Baltimore oriole than he can resist, and he seldom resorts to the orchard to swing his pouch of felt, and only occasionally to gossip with his more modest and less assuming relative. Yet there is little need of the gay, splendid bearer of the fiery brand to give animation to orchard bird-life while the orchard oriole possesses so many attractive qualities, and only differs from the former in its less vivacious manners and less brilliant dress. It is not strange that so many indifferent persons have neglected to form the acquaintance of the orchard oriole, since the similarity of its notes to the eloquence of the gayer oriole adds to the likelihood of confusing the two species. However, if the two orioles are studied separately, each in its chosen resorts, the differences between the two will become apparent, and it will be found that we have two orioles claiming our attention and friendship, each supplementing instead of supplanting the other in our affections.

The orchard oriole has been appropriately named, for it seems to be more at home in the orchard than in other

resorts. However, it has some traits of the Bohemian, and frequently visits the elms and other trees of the doorway where the Baltimore oriole has taken prior claim, though it seldom tarries long, and ever appears to be in a hurry. Like its more brightly attired congener, it loves to linger among the willows and other trees which shade the banks of the smaller water-courses. It generally frequents trees of lower height than its relative, and rarely swings its grass-woven home in the tops of the high maples and elms, as does the Baltimore oriole at times. Its movements are in strong contrast to the leisurely actions of the Baltimore oriole, for everywhere it assumes a nervous, hurried air, both on the wing and among the leaves and twigs. Note its restlessness as it hops from twig to twig, or takes short flights from one branch to another in gleaning its insect food from the buds and tender foliage. Its movements in clinging head downward in its efforts to reach a tempting morsel remind us that many of the warblers have the same habit. Swinging thus momentarily from the extremity of twig or branch, it utters the sweet song which contains suggestions of the notes of the Baltimore oriole, the robin, and the rose-breasted grosbeak; its lyrics, however, are inferior to the rich, full eloquence of the first and last mentioned species, and are more expressive than the carols of the robin in their greater fervor and continuity.

The birds belonging to the family *Icteridæ* are, for the most part, noticeable in their habit of singing while on the wing, and the orchard oriole is no exception to the rule. When nearing a perch, he begins to overflow with melody long suppressed, and pours forth his notes so rapidly that they seem to crowd one upon another and become confused in their execution. The lively disposition of the songster discovers itself in the joyous character of the notes gushing so ecstatically from the vibrating throat, and we intuitively note the difference between this expression of happiness and the loud, rich plaint of the Baltimore oriole. As the merry melody of the orchard oriole comes to our ears, we are charmed with the rapidly enunciated arias, and quickly turn our eyes to follow the form of the musician hurrying to a position among the

twigs in the outer part of an apple tree. Restlessly searching amid the foliage for lurking tidbits, he repeatedly gives expression to his satisfaction by executing his hurried, gushing measures.

As an architect and builder the orchard oriole deserves no less commendation than the more commonly praised Baltimore oriole. Though its nest is not so long and pendulous as the wind-swayed pouch of the latter, and contains little variety in the list of materials used, its neatly woven walls and handsomely rounded form show the work of a master hand, and claim a place of honor beside the best efforts of the better known oriole. The nest is not often situated in the drooping twigs in the lower part of the tree, especially when the tree selected is in the orchard. The commonest site marks about one-third of the space from the top to the bottom of the foliage, or is among branches whose extremities are about one-third of the distance from the apex of the tree to its base, considering the tree a cone. The grassy tenement is commonly suspended between upright twigs, attached by its brim, so that it sways gently at its base, but does not swing as easily as the nest of the Baltimore oriole. It has the shape of a sphere between four and five inches in diameter, with the upper fourth removed. Its walls are constructed almost entirely of a sort of long wiry grass, woven in and out in a most ingenious manner. The grass selected has a peculiar property of retaining its greenness for a long period, though it becomes somewhat bleached in time; hence the affair is rather difficult to discover among the fresh foliage of the tree. Our little friend enjoys a soft bed, however, and sometimes there are found small bits of downy or cottony material woven here and there in the structure, though there is no regularity in the disposition of this substance. This oriole does not exhibit the variations in its work that are noted in the nests of the Baltimore oriole. The complement of eggs consists of four, five, and sometimes six, and the eggs have a bluish-white ground, with irregular spots, blotches, and lines of various shades of brown. Usually the markings are thin and sparse, developing in prominence about the larger end. The eggs measure from .70 to .85 of an inch in length, and from .50 to .62 in width.

The orchard oriole belongs to the eastern United States, ranging westward to the edge of the great plains, and northward to the southern parts of Ontario. Its breeding range extends southward to the Rio Grande. It leaves the United States to pass the winter in Mexico, Central America, Cuba, and adjacent regions. On its return from the south it travels more leisurely than its more noted relative, and reaches central Illinois generally several days later than the date on which the Baltimore oriole apprises us of his advent. On its arrival it evinces its pleasure in greeting familiar scenes by its loud, nervous song. It never appears here before the last week of April or the first week of May, as it has no delight in bare branches and dull skies, and must await the unfolding of the buds and blossoms of the orchard and garden trees.

The male is very noticeable because of his frequent song and hurried movements, both on the wing and among the vernal clothing of the trees he frequents. The female, however, attracts less attention, for she has a shyer disposition, and her dress is dull when compared with the showy apparel of her sprightly spouse. The attractive black velvet in his robe is represented by plainer olive and brown in her gown; and the chestnut-brown which adorns his under parts, by greenish-yellow in her corresponding parts; and she seems to have no time for the apparently frivolous engagements of her restless husband, but spends her time more judiciously in attending to her household duties. However, the male does not neglect his duties to his wife and family, if he does love to hurry about the neighborhood in his important manner. A large part of his time is spent in finding choice tidbits for the family table, and much of his nervousness is manifested while seeking dainties for his quiet wife in her snug and tidy home.

If the bobolink has a counterpart in vivacity and volubility among our Western birds, it is surely the orchard oriole. In our walks over meadows, we see this rollicking oriole clinging to the stems of the vervains, scolding in a jingle no less jingling than the fluent outbursts of the bobolink. Now he rises, uttering his hurried notes in confusing time and in loud, eager manner, and away

he goes to another weed-stem, pouring out the strains of confused melody as he flies. Not long does he swing on the swaying stems, however; and now he is up and fluttering over the top of the high hedge bordering the meadow, singing as he nears the perch and continuing the scolding song as he balances near the tip of an upright branch. As we stroll along the higher hedges, whose long horizontal boughs droop over and form shady archways under which we can walk with ease, the orchard oriole cackles over our heads and flutters from place to place, ever noticeable and ever prodigal of his music. In the orchard he is especially at home, and what the bobolink is to the meadow, this oriole is to the orchard, shifting into the tree above us with flowing melody and curving away almost before he is fairly settled and we have fastened our eyes upon him. Even in town, he is the same gay-spirited, rollicking fellow, loudly announcing his joys from tree to tree in the garden and along the highway, tarrying only long enough to excite our interest, and then hastening to another audience, but leaving a trail of delightful music in his wake.

It was my fortune to become familiar with the orchard oriole before I learned much of the life of the resplendent Baltimorean, for the latter kept beyond my boyish circle of avian friends, exciting my admiration always, but never coming within satisfactory distance, and thus seeming to elude my closer study. In my rambles through the orchard, I soon learned the ways of the orchard oriole, and I derived more satisfaction from the study of its manners than from my passing acquaintance with the black-and-orange-liveried resident of the doorway. I found my friend no less abundant along the wooded banks of the little creek where I went fishing in my early days; and the gushing ecstasy of the cheerful musician touched a responsive chord in my heart, awakened to the delightful voices of nature. In the towns and suburban gardens the voice of the orchard oriole can be heard, and there it frequently establishes its home, though it will not suffer repeated persecution and is easily driven from any chosen resort. Its fluttering form, clad in black and ornamented with reddish chest-

nut, is a pleasant feature of the orchard and garden scenes, and its insectivorous diet renders it a desirable dweller about the premises of the horticulturist. We regret that the greater fame and more splendid plumage of the gay cavalier bearing the colors of Lord Baltimore have caused the orchard oriole to receive less recognition than it merits, and we trust that in future it will receive its share of popular recognition.

RED-HEADED WOODPECKER.

What a frolicsome crew are the lively red-headed woodpeckers! And how variable are their moods! At one time a solitary individual may be heard deliberately tapping in pursuit of a breakfast, or may be detected silently dodging our observation around a branch or tree trunk; at other times they troop from tree to tree in noisy trios or quartets, making the orchard or grove to resound with their loud, jarring notes, as we have seen the demonstrative blue jays flit among the tree tops in early spring. Indeed, the woodpeckers are nothing if they are not noisy; and whether at work or play, they must give utterance to their sharp, unmodulated calls. In their voluble exclamations and versatile manners, the red-headed woodpeckers remind us very forcibly of excited Frenchmen; and to carry the comparison a point further, they ostentatiously wave their tricolored combination of red, blue-black, and white as they follow or accompany one another, all earnestly and loudly uttering their scolding cries. An extended acquaintance with the red-headed woodpeckers, however, will convince one that these birds are more nearly typical of the true-born Yankee, despite their occasional garrulity and their affectation of the showy tricolor. In fact, we can see our own red, white, and blue (black) in the crimson of their head and throat; the white of the secondaries, abdomen, and other parts; and the deep blue black of the shoulders and back. After all, perhaps we were hasty in our fancied comparison of these shrewd, enterprising creatures to our foreign neighbors, since we need not go beyond our own borders to



From life. After Shufeldt.

RED-HEADED WOODPECKER.

find the originals of their crafty, independent character. How much we should miss in the absence of these handsome, rollicking creatures from our orchards and groves! No vibrant tapping on resounding, seasoned branches! No amusing inspection of our movements from behind intervening stubs! No merry clatter and noisy demonstration by playful groups among the gnarled trunks! No flashing combinations of crimson, black, and white through the somber light of the orchard! No display of the clever, original versatility which renders these birds unique among the orchard residents! These and other features of orchard bird life would be lacking, and hence much of the charm and fascination of the orchard.

The red-headed woodpeckers are well known throughout the eastern United States and British provinces. They are common westward to the eastern base of the Rocky Mountains, and southward to the gulf. They are said to be rare in New England. Robert Ridgway reports that they are permanent residents in the southern portions of our State, and that they are even more abundant in winter than in summer. He also states that sometimes (probably very rarely) they make a complete migration, which is very difficult to account for. These woodpeckers are regularly migratory in this section, about $39^{\circ} 20'$, and their disappearance in the fall and their advent in the spring are as erratic and variable in time as other phases of their behavior. I have known them to return to us as early as February 11th, and again to delay their arrival until the 24th of April. The last week of April generally finds them scattered over their accustomed haunts—the groves, orchards, woods, lines of telegraph poles, isolated trees, and prairie rail fences—in fact, any resorts affording them food and something upon which to drum. Even the trees along the traveled thoroughfares of the cities and in the parks, as well as in rural localities, supply the conditions congenial to their tastes, and hence they thrive as well amid the bustle of commerce as in the retired depths of the forest. Indeed, their fertility of resource in supplying their larder and their versatility of manners render them more pliable in their dispositions than the other species of woodpeckers, and

they seem at home amid extremely varying environments.

The red-headed woodpeckers form a circle of their own in the orchard society; for while they do not resent the proximity of other species, or do not object to passing a remark with any good-natured neighbor who desires to exchange the news of the day, they prefer to be left to their rhythmic tapping, or else to frolic with their own kind. Indeed, their independence of the other species resident in their resorts is rather remarkable. Their sports and quarrels are quite among themselves, and no doubt their noisy antics are regarded as extremely scandalous by the sedate bluebirds and knightly robins. In fact, Mrs. Robin frequently descends from her mud hovel in the crotch of the trunk about which the revelers are frolicking and proceeds to squeak her opinion of such actions. Her disturbers, however, show only indifference to the opinions of their neighbors, and continue their play at hide-and-seek around the trunks and among branches, their demonstrations sometimes assuming the appearance of angry contention. In these social wrangles they never come to actual blows, like the robins in their bloodless battles in midair, but usually choose stations on opposite sides of some convenient stub or branch, around which they can dodge as their enemy, rival, or companion hops into view in pursuit, without caring apparently to overtake the leader. The flight of one of the trio or quartet is a signal for the others to give chase, all calling noisily in the jarring tones mentioned, and on adjacent stubs and trunks they again alight and rest for a time, sometimes drumming as an interlude to their rollicking sport. These noisy gambols of the red-headed woodpeckers have their counterpart in the duels and triangular conflicts of the robins on the lawn and among the trunks of the orchard and garden trees, and more noticeably in the garrulous trooping of the blue jays from tree-top to tree-top in early spring, apparently enjoying a game of "pussy in the corner."

In striking contrast to their social tendency at times, there is a more serious phase of the life of the red-headed woodpeckers. They spend a good share of their time in

solitary reverie, standing against the perpendicular side of a stub or trunk, tapping listlessly now and then from sheer force of habit, or drumming occasionally to practice their musical rattle. Like the other woodpeckers, they are either noticeably noisy or impressively silent. They are true woodsmen, at times reserved and even taciturn, at others gay and frolicsome to the verge of excess. The real nature of the woodpeckers disposes them to solitude and contemplation, and I have thought that the gambols of the red-heads are the reactions of their deeply meditative moods. Our red-headed friends are philosophers at least in appearance, for when alone every action of theirs seems to be preceded by calm forethought and deliberate judgment. Observe the silent deportment of an individual braced along the top of a stub or favorite branch! How deliberate and thoughtful is his air as he looks calmly either right or left, or gazes stolidly at the surface before him, and perhaps strikes a few steady blows with his sharp pick, as though seeking a morsel beneath the bark! He is, however, only ruminating on important questions of Picine policy, for he has lately dined on ants picked from a decaying stump that he claims as his larder, and he is therefore not hungry, but well fed, and has time to consider such weighty matters as demand his attention.

In their vocal efforts the woodpeckers make no claims to musical genius; but while they are not gifted with powers of song, the red-headed woodpeckers are skillful and finished in their instrumental performances. Their appreciation of rhythm and resonance is often clearly shown in the resounding reveilles they beat upon their favorite branches or other suitable instruments. The steeple of a church adjoining my father's residence was a favorite resort for the red-heads of the vicinity who desired to practice their love calls. Its tin covering and hollow structure formed a famous sounding-board, and their loud drumming upon it could be heard an extraordinary distance. I frequently wondered what the silly red-heads could find in that tin-covered steeple as a motive for their continuous tapping, seemingly kept up intermittently for many minutes on some occasions. As I became more observant, however, I found that the tap-

ping was a rhythmic roll, produced only for the sake of the sound, and corresponding to the drumming of the partridge in the springtime as a signal to any lovelorn female that might chance to be within hearing.

Have you never thought that there are some gifted instrumental musicians among the birds? It is evident that this regular drumming of the woodpeckers is not practiced in the course of their ordinary work in procuring food, for in the latter case their strokes are generally given more slowly and with more labored motion, accompanied by frequent search for results. Their drumming, on the other hand, has all the elements which distinguish music from noise; and from the glances of the performers to right or left, and the expectant air with which they look and listen during the interludes, we infer that they desire reply of similar character, or applause from the listener below. And frequently they merit applause in their skillful renditions, for they beat the long roll with the ease and effect of trained army drummers, and their fine sense of expression is impressed upon us by their variation of touch and mastery of technique. I knew a red-headed woodpecker who recognized the acoustic properties of the tin water-pipe descending from the roof of a large school building, and in the spring and early summer his long, rattling roll would resound with wonderful effect. Frequently the drowsy deacons of rural churches are startled from their dozing by the vibrant rattle of the woodpeckers drumming upon the resonant corner of the wooden cornice or upon the low, box-like belfry; for the red-heads have apparently learned that the quiet stillness of the Sabbath morning enhances the effect of their performances. Any objects which act as sounding-boards may be selected by these virtuosos, and after a particular instrument is found to their satisfaction, they practice upon it in preference to others in the vicinity.

At times the silent movements of the red-headed woodpeckers in their operations about the orchard and elsewhere are also curiously at variance with their noisy behavior on other occasions. Sometimes the orchard seems to be deserted by them, when they are clinging meditatively behind some approved shelter, striking into

the decayed wood only occasionally, the rotten particles giving passage to their sharp bills with dead or muffled sound. They are wary enough to evade observation when they desire, and as the bird-gazer passes around the stub, tree trunk, or telegraph pole on whose opposite side they cling, they keep from view with the skill and cunning displayed by the squirrels in their arboreal haunts. Their facility in dodging is apparent to any one passing along a telegraph line, the tall, seasoned poles of which are favorite resorts of the red-headed woodpeckers. Around the sides of the poles they watch the observer from the corners of their eyes, hopping around in time with the progress of the suspected person. Frequently they fly from one pole to the next in advance of an approaching person, finally evading him by doubling around their post of observation and flying along the line he has just passed, all the while silent and alert. Their flight has little of the long undulations which mark the course of most of the woodpeckers through the air, and varies little from a straight line, though it usually ends in an upright, abrupt curve.

The red-headed woodpeckers are remarkably deliberate and thorough in taking their food from a particular spot. They differ materially from some of their relatives in hunting more closely over any selected stub or branch in quest of their food. The restless gleaning of the downy woodpeckers through the orchard and woods is very different from the steady, stolid work of the red-heads in any chosen quarter, and the business-like methods of the latter are certain to keep their tables well supplied with whatever the season affords. At times they bore irregularly for many minutes without changing their station, sometimes striking into the tough wood more forcibly by swinging the head and shoulders about the stiff tail feathers as a fulcrum. To any one observant of their actions while working industriously for their food, it is evident that the spine-like quills of the tail, holding them more securely in position, enable them to throw the upper members of the body farther from the objective point of their operations, and thus to lend more of the weight of the body to the stroke. These heavy, irregular strokes

of the woodpeckers are characteristic sounds of the orchard, and have little in common with the rapid, rhythmic beating of their love calls; they are rather the labored strokes of the birds seeking to supply their physical needs. There are evidences of acute hearing shown in the listening attitudes of the red-heads after an interval of strong tapping; and their more vigorous strokes after laying their heads alongside of the objective point of the work is further evidence that they are guided in their search for insects chiefly by a remarkably acute sense of hearing.

The nests of the red-headed woodpeckers are constructed during the middle and latter part of May. The site of the nest is as variously chosen as the varying nature of their circumstances admit. Often the cavity is constructed in a dead stub only a few feet from the ground; frequently it is near the top of an elevated, deadened arm of a forest monarch. A friend of mine once clambered out to a nest on the under side of an oblique branch which extended over the water of a wide, shallow creek, so that the site was at least seventy-five feet above the water. Dead, denuded stubs, not more than eight to ten inches in diameter, are favorite sites for their cavities, and oblique branches are always in demand. The excavation is not generally made in rotten or decaying wood, but in sound, seasoned timber, in whose strength and firmness the death of the branch or stub has made but little difference. A chosen site may contain a number of excavations made by the woodpeckers in succeeding years; and while I am not certain that the same cavity is used by the same pair of birds in a later season, it may be pre-empted in the following year by another pair and used as a home to rear a brood. Generally a pair prefer to excavate another cavity, even in the same branch or stub, to occupying the cavity of the preceding season. The female does not shirk any part of the labor in the construction of her future home, and the male does not leave the matter of building to his spouse, as is common with so many birds; but with a perfect understanding they take turns of ten to thirty minutes at the work, one relieving the other at pleasure.

The entrance is a sub-circular hole only large enough to admit the body of the birds with ease, and the cavity extends horizontally backward from the top of the entrance for five or six inches, while from the bottom of the entrance it slopes more abruptly toward the bottom. The depth of the cavity varies from eight to fifteen inches in most instances; in exceptional cases it is even deeper. The base of the excavation is wide, forming a roomy recess from five to six inches in extent. The floor of the cavity is covered with a bed of soft wood dust in some instances; frequently the bottom is bare. No material for a nest is carried into the cavity, but the beautiful, rosy-white eggs are deposited on the bare wood. There are five or six eggs in the complement, and the average egg measures an inch long by .78 of an inch in breadth. The eggs are generally deposited by the first of June, and both birds attend to the duties of incubation.

The care of the young birds is a matter of some moment to the parents, and the time of both is pretty nearly occupied in providing for the wants of the growing youngsters. When the young are quite helpless, the parent birds first alight in their accustomed place below the entrance, and then slip into the cavity to attend to the brood. When the nestlings are older, the parent birds notify them of their arrival by drumming on the rim of the entrance, in response to which the eager youngsters set up a confused murmur, which has a strangely buzzing effect to the listener without, and they clamber to the entrance to receive supplies from their elders. It is usually well into July before the broods leave their nests, and the young birds are soon at ease on the wing, and readily learn to forage for themselves. The young can be distinguished from their elders by their brownish gray head, neck, and throat, instead of the bright crimson of the corresponding parts in the plumage of the older birds. The young also have their backs marked with gray and black. Several weeks are spent by the parents and the youngsters in company or in communication, the latter apparently receiving careful training in the most approved methods of capturing and finding their food, after which

they are free to make their way according to their own pleasure.

The red-headed woodpeckers have learned to vary their diet gathered from the bark and cavities of trees by capturing flying insects, and also in taking them from the ground. When we have watched their actions along the telegraph poles, we have often seen them fly obliquely upward, dexterously capture an insect which had entered their field of vision, and fly back to their station on the side of the pole. Indeed, they are as skillful as the kingbirds in this aerial prehension of food, and hence might claim a place with the flycatchers. I have seen them shoot upward almost perpendicularly above the top of the high steeple mentioned, turn abruptly after an attempt, and return to their drumming as indifferently as though their actions were perfectly natural. These sallies into the air, either in the rapid dashes upward or in slightly elevated courses from a horizontal, ending in a beautiful elliptical curve upward to take their prey, are very characteristic of these many-sided experts. Frequently they fly directly to the ground from their post of observation, pick up some attractive morsel, and return to their place to swallow it, as we have observed the bluebirds do in their foraging. The red-heads are especially fond of grasshoppers and large beetles, and in their visits to the ground and in their aerial excursions they are attracted by these larger dainties. The conveniences of civilization have suggested to these enterprising fellows that it is easier to spread their boards from the plenty about them than to pierce the bark and wood for most of their fare. Hence they have added to their strong liking for the wild fruits of their native woods a similar taste for the fruits of the orchard and garden and some of the products of the field, so that at times they appear inimical to the interests of the horticulturist. Wilson Flagg says that they carry off the finest apples, and feed upon the Indian corn when in the milk. We have seen them accompany the robins to gather supplies from the cherry trees, and have observed them associated with the brown thrashers to regale themselves with the treasured pears. Scientific investigation, however, has demonstrated the general utility of

the red-headed woodpeckers, and shown that the damage they do in the orchard, garden, and field is in small ratio to their beneficial services.

There is a provident side to the character of the red-heads, for in times of plenty they have regard to their needs for the future. Their hard experiences in former periods, before the days of civilization, doubtless stamped upon the species the trait of hoarding a part of their present supplies; hence they can be often observed flying toward some chosen spot, carrying something for their hoard. Acorns, nuts, and other similar bits of food are stored into crevices of the bark of favorite trees, crotches of branches, and cavities they have constructed or selected for the purpose. The birds being migratory here, these little scattered stores of food are seldom drawn upon; the habit, however, suggests the inquiry as to whether these woodpeckers were not formerly residents in this section. It is well known that the blue jays, the nuthatches, and other birds of the woods share with the red-heads this habit of hoarding for times of need.

III.—TENANTS OF THE HEDGEROW.

"The little bird sits at his door in the sun,
Atilt like a blossom among the leaves,
And lets his illumined being o'errun
With the deluge of summer it receives;
His mate feels the eggs beneath her wings,
And the heart in her dumb breast flutters and sings;
He sings to the wide world, and she to her nest:
In the nice ear of nature, which song is the best?"
—LOWELL.

DOUBTLESS a vast number of American boys and girls are familiar with the osage orange, and know how the rows of that growth tessellate the extended prairies of this section of our Union. Many of our readers live in rural regions, and have seen hedges every day for years—have perhaps trimmed miles of them—and from very familiarity have long since ceased to admire or even notice them. But those who have ridden, rambled, or worked along a hedgerow, if they have formed the habit of hearing the myriad sounds and observing the suggestive sights ever inviting one's attention, have noticed that the ordinary hedgerow is populous with feathered songsters, and contains homes wonderful in their construction and design. Many of our well-known birds, and others whose notes and forms have escaped ordinary attention, frequent the hedges of the prairie region, building their nests and rearing their young where one can easily form their acquaintance and become conversant with their ways and manners. Not all the species tenanting the hedge are found in any particular row. Some species resort only to pieces of hedge which have been allowed to grow untrimmed for several years, and whose long horizontal



NEST OF LOGGERHEAD SHRIKE.

From life. By F. M. Woodruff.

branches droop almost to the ground with their weight of boughs and foliage. A few species nest only in hedges which border or overhang ditches and low meadows, while other species resort to hedgerows only in certain portions of the summer season.

LOGGERHEAD SHRIKE.

The loggerhead shrike is one of the familiar tenants of the hedgerow in early spring, and most boys recognize its well-built form perched on the summit of an upright branch, stake, or small isolated tree. However, it is seldom known among its rural friends by the title we have used, but it will be quickly recognized under its more popular name of "butcher bird." The shrike is famous for its unexplained habit of impaling its prey upon thorns, and in this curious trait we find the origin of its popular title. This bird can be identified easily by strangers by the ashy-gray plumage, with black wings and tail, the black stripe upon the side of the head, and the white spot displayed on the black wings while the bird is flying. Persons who have observed the mocking bird in flight will remember that it also displays white spots on its wings.

This bold privateer early claimed a place among my avian acquaintances. On my initial visit to the woods, when I was first allowed to go fishing with several older companions, we passed a low thorn-tree along the roadside, from which flew out a grayish bird with white spots on its wings. "There goes a butcher bird," and "No, it's a French mocking bird," and "He's got a nest in there," cried the boys, with a rush for the tree. Thus I was introduced to the butcher bird, which I was afterward told by higher authority was the great northern shrike. However, when I owned a gun and became interested in ornithology, I learned by examination of the birds that our winter shrike differs in important details from the summer resident. The great northern shrike visits us only in winter, and is not known to nest in Illinois; while our summer shrike is the loggerhead species. The latter is no less powerful, cruel, and bold than the northern

shrike, both possessing the same traits and essentially the same nature, and differing little in appearance to the casual observer. The wavy dusky lines on the breast of the northern shrike, however, serve to distinguish it from the loggerhead shrike.

The summer home of the loggerhead shrike is eastern United States, ranging north to middle New England, and west to the great plains. The white-rumped variety occurs in other portions of temperate North America, and is probably gradually extending its habitat eastward, overlapping the range of the original loggerhead on the north and west, reaching even into New England. The first individuals appear in this latitude early in March, and the last are seen until the end of October. They may be seen perched on the telegraph wires along railroads, in the summits of isolated trees in fields, on shocks of corn, and on hedges along roadsides and elsewhere. At the approach of any person they take wing, with low flight, in a moderately undulating course, displaying little of the lightness of wing so characteristic of many birds. Like the passage of the great horned owl among the forest trees, their line of flight is usually below the point where they wish to perch, and hence their flight ends in an elliptical curve upward to the branch on which they aim to alight.

A pair of shrikes will often resort to the same locality year after year, even when disturbed in their nidification. A solitary cottonwood tree, standing beside a small pond in a meadow adjoining my native village, yearly harbored a pair of shrikes. With another tree of the same species on the opposite side of the village, growing near a hedge and a ditch, I learned to associate another pair of butcher birds, and annually I was certain to find their nest, either in the tree or the hedge. Their nests were frequently harried by wandering boys in quest of specimens, yet each returning spring found the shrikes constructing their homes at the accustomed stands. A reason for their appearing to return to the same places every year to locate their nests is found in the fact that they prefer the end of a hedgerow; and if a pair select a site in any hedge, it will usually be about twenty feet from the extremity of

the row. Thus certain sites in the hedgerow are tenanted year after year, while perhaps the owners of the site may change with each season.

During the early portions of the season the shrikes are quite musically inclined, and the males possess a variety of notes which are well adapted to the character of the species. I can only think of the rude war songs of the Spartan soldiers in connection with the musical attempts of these plundering barons. Generally their music is harsh and squeaky, yet at times some of their tones are sweet and sympathetic. One evening, at dusk, in early April, I was walking homeward from an afternoon ramble, when my interest was excited by a strange song, uttered with an earnestness and emphasis new to me. Was it the performance of some genius who had not yet learned to use his musical voice with ease and accuracy? Or was the performer a migrant with whom I was unacquainted? Yet there was a familiar ring in the short series of notes, repeated after slight pauses. The performer was hidden in the body of the hedgerow, and was so occupied with his efforts that I approached within six feet of him, sitting near a nest recently finished. It was the veritable love ecstasy of a shrike, to which I had listened for the first and only time in my life. Such songs are heard only a few times in one's experience, and they represent the acme of the musical ability of the individual furnishing the delightful strains. The best music of the shrike has a certain sweetness, and is suggestive of the notes of a flute, yet the element of harshness displeases the ear of the sensitive listener.

In this locality the shrikes begin nest-building about the first of April. Generally the foliage of the hedgerow has not developed before the completion of the structures, and the bulky objects can be easily seen from a distance. Stout thorny crotches in the main axis of the hedgerow, from five to eight feet from the ground, are the usual sites of the nests. Honey locusts, wild crab apple, plum, and other thorny and dwarf trees furnish it strong positions for constructing its castle. The nest is placed in a framework of coarse, thorny twigs, and is formed of soft vegetable bark, dried leaves and grass, wool, feathers, and

similar materials, well interwoven. The cavity averages three and three-fourth inches in diameter, and two and one-fourth inches deep, and is rendered cozy by the soft feathers used for lining. The eggs in a complement vary from five to seven, and are dull grayish white, spotted and marked irregularly with reddish brown and lilac. They measure .90 to 1.00 inch in length, by .70 to .82 in width. In many instances two broods are reared in a season in this locality.

The beautiful domestic relations of the shrike present a marked contrast to the cruel, heartless disposition he evinces beyond his home circle. If he is a plundering baron among his fellows, he is a devoted, loving knight in his attentions to his lady. In the erection of the castle residence, custom prescribes that the bulk of the work shall fall to the part of the female. Like a true knight, however, he lingers in the immediate vicinity of the site; and when she flies to the spot with a mouthful of weed-bark, feathers, or other materials, he flies to the nest also, and encourages her with many a loving "quaa." While she is incubating, he is equally faithful in supplying her wants. He can generally be seen perched on a telegraph wire, if the hedge containing his home borders the railroad; otherwise, he has a convenient perch near the nest. When he spies a grasshopper or a mouse, he flies down and captures it, returning to his station for a moment to survey the neighborhood. If he find the coast clear, he flies immediately to the nest, and proffers his love-offering to the female, both birds uttering a plaintive cry, accompanied by the syllable previously mentioned, uttered now in a more affectionate tone. Frequently the female leaves the nest to meet him on a near perch, and an affectionate scene ensues—a rubbing of noses and a long "quaa" conversation.

Once, when I stood in a road and watched a male flying with food toward a nest near me, he turned his course and flew along the hedge, away from the nest, for twenty rods at least; then, apparently concluding that I was not to be misled—perhaps remembering that I had been a frequent visitor to the nest, and meant no harm to his openly-constructed home—he abruptly wheeled about and came

directly to the nest. If the female is tired of brooding her eggs, and desires to stretch her wings in a refreshing excursion afield, she meets her devoted mate on a convenient perch near the nest, and after receiving his affectionate greeting, she flies to the accustomed stand on the wire or elsewhere. He settles himself in the feathery circle of his home, while she starts out over the adjoining meadow or corn-field to forage for herself.

When the safety of the nest is threatened, the male is prompt to respond to the harsh call of his spouse. However, she is not easily displaced from her charge, and when she is disturbed, she perches near the nest, after leaving it sullenly and deliberately; then she gradually draws nearer, and even threatens to attack the disturber. All the while she utters the harsh syllable represented by the combination "quaa." Soon her faithful knight is at her side, and both birds are kept away from the disturber of their home only by the repellent demonstrations of the enemy, whom they regard with fierce eyes and ruffled plumage. Their dogged, deliberate courage in thus defending their premises is only another manifestation of their stolid Spartan character, and presents a marked contrast to the excited fluttering and feigned attacks of more helpless birds when their homes are threatened.

Concerning the food habits of the shrike, there is uncertainty as to which side of the account the balance belongs to. Field mice, moles, and grasshoppers form a large per cent. of its yearly bill of fare, and this fact entitles it to favorable consideration. It is said to pick up young rabbits in season, thus ridding the horticulturist of troublesome pests later in the year. On the other hand, it destroys smaller species of birds and reptiles, which are themselves greatly beneficial. Its rapacity and cruelty are attested by numerous witnesses. A writer, signing himself "J. D. F.," in *Oologist* for October, 1888, says that the shrike is a particular enemy of the yellow-throated warbler, and that he has often seen it, though not without battle with the old birds, tear down the tuft of moss in which the nest is always suspended, and devour the contents. He adds that in like manner it destroys the nest of the brown-headed nuthatch, by pulling down the dead

bark which protects the nest. On one occasion I observed a loggerhead shrike chasing a bird which I took to be a Maryland yellow-throat, and like a weasel in his determination, he followed his quarry more than a mile over the open meadows; and when his intended victim dropped into a thicket to escape its relentless pursuer, he dashed down after it with unabated perseverance.

Most of the accounts of the boldness and rapacity of the shrike refer to the great northern species. Though we have said that the loggerhead shrike is scarcely less bold and cruel in its nature, it makes its home with us during the time when insect food is abundant; and in its diet it is largely insectivorous, since insects are captured with less exertion than are small birds. In the early spring it is a fellow-laborer of the farmer who is moving the shocks of corn which have been allowed to stand in the field during the winter months. The corn shocks have become tenanted by families of mice, and when the stalks are torn apart the mice can be seen scampering to other quarters. The shrike, waiting from a convenient perch for the appearance of its prey, dashes in pursuit of its victim, regardless of the proximity of the farmer, and often picks up its prey almost from between his feet. Sometimes the shrike will hover over its intended victim after the manner of the sparrow-hawk, and drop down upon it after a momentary pause in mid-air.

On only one occasion have I been so fortunate as to witness a shrike impale its victim—a mouse recently caught—upon a thorn. The shrike flew past me with its prey, which it carried in its strong hooked beak, and alighted in the top of a hedge tree near me. Selecting a thorn which projected away from it, the lucky forayer pushed the body of the mouse upon the thorn, which penetrated the shoulders of the victim. By pulling on the body with his bill, the shrike fastened the mouse securely as he pulled, and thus was enabled to tear away the portions of the body he desired for food. Several dainty mouthfuls, however, appeared to satisfy his Epicurean taste; and as three or four wandering grackles alighted in the tree near him, and continued the voluble conversation in which they were engaged, the shrike indicated his disgust at

their loquacity by flying from their vicinity. An hour later I passed the tree, desiring to know whether the shrike had returned to finish his disturbed repast, but the mutilated mouse hung with hind feet and tail dangling as the shrike had left it. It was evident to me that the bird had not killed his victim solely from hunger. Several weeks later I again passed the tree, and the mouse still dangled as before—a striking evidence of the shrike's cruelty, and of the untimely fate of mice stealing about on mischief bent.

As the male is a good provider for his wife while she is brooding her eggs and young, so both parents are noticeable in the care of their offspring learning to gain their own livelihood. For several weeks after the youngsters have left their downy home the parents accompany them, and the family can be observed scattered along a telegraph wire or along a hedgerow. The careful lessons of the parents to their offspring in the art of catching grasshoppers and mice are very interesting and amusing to the ornithologically inclined observer. The patience of the parents and the docility of the younglings are good examples for beings even higher than the birds. Every attempt of the novices is encouraged by an affectionate "quaa," and over and over again do the older birds explain and illustrate until the youngsters have become self-supporting and each of them can forage for himself almost as skillfully as the experienced parents. Thus the shrikes linger among us until the changing weather of October drives them to southern regions, and brings to us the similar but different species, the veritable great northern shrike.

BROWN THRASHER.

While we are examining the homes of the shrikes, the first spring songs of the brown thrasher are borne to our ears, and their melodious fulness establishes the rank of the performer as the prince of Northern songsters. During the last three weeks of April his loud melody, poured from his perch in the top of the hedge, can be heard almost in-

cessantly, and has given him no mean reputation, even in localities where brilliant bird music is the rule. Residents of the open prairie districts in the Northern States, whose acquaintance with the mocking-bird is limited to captives and an occasional wild straggler, and who never hear the exquisite notes of the wood thrush except when visiting the deeper woodlands, recognize the brown thrasher as the past master of northern rural song. In his favorite haunts during the earlier mating and nesting season, no bird surpasses him in the volume and quality of continued melody. The cat-bird alone approaches him in sweetness and modulation, but lacks the thrasher's power and continuity of song; and the cat-bird's frequent interpolation of its unmusical cat-cry detracts much from its sweeter utterances.

From the manner in which the brown thrasher introduces the notes of other species into his own airs, he is popularly known as a "mocking-bird," though he should not be confounded with the real "moquer" of the Southern States and the southern portions of our own State. In real melody and variety, as well as unexpected surprises of musical combinations, the brown thrasher is little inferior to the true mocking-bird, but after him is not rivalled by any other American bird. Indeed, many excellent judges with cultivated tastes do not hesitate to place the brown thrasher above the mocking-bird, as the better singer, in their judgment. In my opinion, however, the brown thrasher evinces less taste in the class of notes which he seems to imitate, often selecting those of harsher quality, and thus marring the effect of his own sweet notes by associating with them the notes of birds whose songs are incomparably below his own.

The brown thrasher is an inhabitant of North America east of the Rocky Mountains and south of the British Provinces, breeding throughout its range, and migrating in autumn to the Southern States. Thomas McIlwraith says that it occurs throughout Ontario, and crosses the boundary to Manitoba and the Northwest, retiring from Ontario in September. On its northward migration it reaches central Illinois late in March or early in April. March 18, 1882, and April 6, 1892, are the extreme dates

among my records of its arrival. Robert Ridgway notes its arrival at Mount Carmel, Illinois, for four successive years, from March 21st to 26th, and intimates that it sometimes remains all winter in that locality. John B. Grant, in "Our Common Birds and How to Know Them," states that it arrives in southeastern New York from April 20th to the last of the month, at which time most nests of the brown thrasher in central Illinois have their full complement of eggs.

The two weeks or more following their arrival in a given neighborhood are devoted to courtship and song. The brown thrashers are regular birds of the hedgerows and bushes; but during the period of honeymoon they come into villages and suburbs of large towns to sing in the tops of the large trees. They also pour forth their lyrics from the elms and maples of the farmer's door-yard. Throughout the entire day they vie with one another in their clear, sweet notes, which are usually uttered in pairs. Indeed, they are so full of melody that they commonly begin their songs before reaching the intended perch. When once seated in a commanding position, they are in no hurry to leave if they are not disturbed, and they regale the listener with a full round of rich recitals, sitting with head erect and long tail pendent as they utter their varied and delightful song. Among their notes we can identify the soft carol of the bluebird, the bolder warble of the robin, portions of the twitter of the canary, and the squealing of the young pig, as well as other less musical tones, all mingled with the notes peculiar to these songsters. When disturbed in their recitals, or when fancy leads them, they abandon their perch with low, heavy flight, the long tails drooping as they advance with rather undulating motion, to continue the concert in another neighborhood.

The nesting season begins with the middle of April. Resorting less to the large trees in towns and suburbs, they frequent thickets, hedgerows of osage orange, brush-heaps, and isolated thorn trees and bushes in open pastures, to construct their homes and rear their broods. Thickets of hazel, wild gooseberry and blackberry bushes now become their haunts. Their music is now heard less

frequently, though at times while the female is sitting the male mounts to a convenient perch and cheers his mate with his sweetest strains, more expressive but less forcible than the earlier songs. By the time the eggs are hatched, the males have become silent and their songs are heard no more in their fulness of rich melody, the end of the first week of July being the limit of the vocal season in central Illinois.

However, one who is rambling along the hedgerow in July or August may frequently come upon an individual in the bush, or sitting low in the hedge, uttering portions of his song in a low monologue, scarcely audible to the eager listener a dozen feet away from the performer. This tender crooning of the brown thrasher, like that of the catbird and mockingbird, is heard chiefly at early morning or late evening in the summer, and is the love plaint of some late householder whose early home was harried, or who is rearing a second brood to cheer the lonely hours of the moulting season. These subdued and saddened songs of summer are more appreciable from the fact that they are the feeble flickerings of the expiring flame of melody which so brightly illumined the early weeks of spring, and we turn our ears to catch the sounds now dear to us from their rarity, as remembrances of the perfect days whose music we slighted because of its very omnipresence.

The nests are made externally of hedge sticks, corn husks, strips of bark, and other coarse materials. I have found pieces of maple bark woven into nests which were fully half a mile from the nearest maple trees. Dried root fibers are usually made to serve as lining for the nests. The common situation is in a crotch in the central part of the hedge, thorn-bush, or scrubby tree, at distances from the ground varying in all degrees under six feet. Sometimes nests are found on the ground beside fallen brush, and once I found a nest on the ground in an open meadow, set in the grass like the home of an ordinarily ground-nesting species. Another time I found a nest of the brown thrasher in an apple tree, placed on a platform of intersecting twigs of horizontal boughs about twelve feet from the ground. Nests placed in the hedges are usually well

surrounded by spiny branches. Heaps of hedge and other brush are very satisfactory sites for nests, and scattering clumps of wild gooseberry bushes in woody pastures are favored sites, as well as dwarf haw trees. The eggs are generally four in number, occasionally five, and rarely six, pale greenish, finely speckled with reddish brown. Davie gives the average size as 1.08 by .80 of an inch, with considerable variation.

No other tenant of the hedgerow is more noisy than the brown thrasher, and when startled from the bush it emerges with a great rattle and flutter. It has a call note which can be closely imitated by whistling the word "George," the first half of the combination being prolonged. This note, as well as a sort of cracking sound uttered quickly, is also used to express alarm. The crackling note is given almost similarly by the slate-colored junco, and also by the fox sparrow, which utters it more loudly and forcibly. The brown thrasher enjoys hopping and running among the dead leaves at the base of the hedge, and it thus causes considerable rattling and rustling of the dried vegetation. Its long tail, carried usually in a drooping manner, is frequently expanded in a graceful way as the bird flits from one bush to another. When it flies any distance, except in the early season while it is frequenting the tops of the taller trees, its flight is low and heavy, resulting from its comparatively short and rounded wings; and its pendent tail adds to the effect.

From the first of July to the time when they leave our locality in the early days of October, the brown thrashers skulk closely in the hedges, brush-heaps, and thickets, indicating their presence when disturbed by the notes already mentioned, and flirting out of the hedge with considerable noise, either flitting on ahead a short distance, or passing around and behind, to enter the hedge again. At this season they slip quietly into orchards and fruit gardens to feast upon the fresh ripe fruits. Near the close of warm summer afternoons in dry seasons several individuals may be seen bathing and rolling in the dust of the highway with evident pleasure, flitting to the hedge along the roadside when they are disturbed by travelers. This habit of dust bathing is not confined to this species, but

is indulged in by many of our familiar birds, and is much in vogue among the domestic fowls.

Prof. S. A. Forbes, in his investigations of the food habits of many of our common birds, has done the agricultural interests of our State important service, and his reports have elsewhere been referred to and quoted from. His observations show that the food of the brown thrasher consists partly of fragments of corn and other grains and seeds, predaceous beetles, ants, caterpillars, thousand-legs, and other similar insects. "It relishes the whole list of garden fruits, and later in the season resorts, like the other thrushes, to the wild fruits of the woods and thickets."

My own notes record the havoc made by the brown thrashers in a tree of ripening pears. I have seen as many as four birds at one time feeding in one small pear tree in the heart of a village of two thousand inhabitants. Their manner of eating pears is to peck large mouthfuls from each pear within reach. Thus many pears are spoiled for use though not entirely eaten. In their visits to our orchards and gardens, the brown thrashers always move with the skulking air before mentioned, so radically different from the high-handed manner of the robin and mockingbird. Col. Goss, in "Birds of Kansas," states that they have a peculiar habit of beating captured insects upon the ground or perch, knocking and thrashing them about until dead (and removing the wings and legs of the larger ones before swallowing), and for this reason they are called thrashers.

The species is sometimes known as the brown thrush, but it is not a real thrush, and Dr. Coues says that the thrashers are more like overgrown wrens. Persons who are not acquainted with the brown thrasher may identify it by the bright rusty red of the upper parts, the clear white throat, the reddish white breast and sides marked with spots of dark brown, the black bill (black except the yellow base of the lower mandible), and the yellow iris. Its length is about eleven inches, with an extent of wing of thirteen or fourteen inches.

TRAILL'S FLYCATCHER.

A few species loiter and dally among the foliage in the first weeks of spring, as though loath to assume the responsibility of rearing a family; they flit in and out among the leaves, uttering soft notes of love and quiet content, seemingly with no cares and no thought of home-building. In this list we find Traill's flycatcher—a small bird with bright olive back and whitish under parts, with dusky wings, crossed by two grayish bars. The retiring disposition of this gentle-spirited flycatcher, and its lack of forcible notes with which to attract attention to its presence, as well as its marked resemblance to several congeners, have prevented the circle of its acquaintance from widening in ratio to its abundance. In this locality it is the most common of the flycatchers, though its presence is the least remarked, owing to the more familiar habits of the other species. It is known to boys who meet it along the hedges as the "pewee flycatcher," and it certainly resembles the pewee in general coloration and in superficial habits. Its chief mannerism is an excessive restlessness, which not often allows it to retain a position favorable to its careful examination by the observer. While the pewee, even when aware of observation, will return to the same perch repeatedly after darting into the air to capture its passing prey, Traill's flycatcher changes its base of operation rapidly, and almost invariably stations itself so that intervening foliage obstructs the view of the observer. It rarely perches as high as the limits of the bushes and hedges which it frequents; while the pewee commonly selects an exposed position on a dead or bare branch of a tree, often quite high, for its point of reconnaissance.

Traill's flycatcher is a summer resident of western North America, from the Mississippi Valley (Ohio, Illinois, and Michigan) to the Pacific. It retires beyond the United States in winter, visiting Mexico and Central America. It is one of the later travelers from tropical climes, entering our latitude about the third week of April, sometimes delaying until the first of May. Un-

trimmed hedges of two to four seasons' growth appear to be its favorite places of resort in the dry prairie regions, as well as bushes bordering water-courses, and standing in meadows and low situations. Places frequented by Bell's vireo and the white-eyed vireo are usually tenanted by this flycatcher. It has no distaste for proximity to towns and villages, and hedges are likely to harbor it, provided they furnish the horizontal and drooping branches on which it ordinarily places its upright nest.

The first two or three weeks of their summer residence are spent by these flycatchers among the bushes or along the hedges, sporting with their companions, and devoting their days to quiet courtship and the delights of love, enjoying a period corresponding to the honeymoon of more rational beings. Strolling along the hedges at this season, we hear them playing with their mates, uttering a gentle "queet," or "grea' deal," perhaps followed by a low, squeaky monologue or dialogue. Presently one darts into view, followed by a companion, both uttering the soft but emphatic note above given, and then both disappear in the foliage as quickly as they appeared. When over the hedge, out of our sight, they talk in a low, lisping chatter, which is readily suggestive of the first efforts of a child to blow his tin whistle. This is their nearest approach to singing, as the flycatchers are ranked by naturalists among the *Clamatores*—the group of passerine birds which lack the complicated singing apparatus, and whose vocal performances are limited to short cries. Occasionally one of the birds flies over the hedge, and perches momentarily on a bare limb, after the manner of the pewee. Almost immediately it is away after a passing insect, which it takes by a short outward and upward flight, and returns to its perch, to dart over the hedge and out of sight before fairly settling to rest.

These flycatchers seldom go far from their homes, and soon after their arrival they attach themselves to a particular piece of hedge, along which they play, and in which they will establish their households. When the home is in process of erection, and after the eggs are deposited, their gallantries occur near the nest; and when

you hear their gentle "queet," it means that you are within a small radius of a home, and the owners are voicing their distress at your invasion of their limits.

Nests of Traill's flycatcher are seldom found in this locality before the second week in June. I have repeatedly looked for them earlier without success. Hedges afford the most favored sites, and the distance from the ground varies between three and ten feet. Hazel, plum, and alder bushes are common resorts, and among such bushes the nest is generally placed in an upright crotch. On July 30, 1894, I found a nest four feet from the ground in a plum bush. It was built on a horizontal branch near the extremity, where twigs branching on either side afforded a firm base. In hedges the nest is almost invariably set on a horizontal limb and bound by vegetable fibers to one or more upright twigs. I have been unable to find any mention of the fact that nests of this flycatcher are thus situated upon horizontal branches in hedges. I never found a nest fastened around the branch on which it was placed. Frequently nests are constructed on obliquely ascending limbs where forking twigs furnish points of attachment, a site very similar to nesting sites of the goldfinch. The highest nests in hedges are usually built in regular crotches. Most of the nests of this species are found between five and eight feet from the ground.

There is little variation in the construction of the nests. The materials used hereabouts are grayish vegetable fibers, dried stems of small weeds, feathers, and pieces of gossamer. The materials are carried by the builders in large mouthfuls, and hence the fibrous dwelling is not long in process of fabrication. Externally, the structure has no especial appearance of neatness, and resembles the work of the goldfinch and the yellow warbler, though it lacks the compactness of the nests of the species mentioned and averages rather larger in its dimensions. The cavity is more smoothly finished than the exterior, usually with fine dried grass and a few downy feathers. The nests range from two and a half to three inches in diameter externally, and from two and a half to two and a fourth

inches high in position. The interior varies in width between two and two and a fourth inches, and averages one and a half inches in depth. Three eggs form the complement in most nests, though four eggs are not uncommon. They are a beautiful creamy white, spotted with umber and brownish, chiefly about the larger end, though the markings vary considerably in size and position. In size they average .72 by .52 of an inch. Of twenty-three nests examined by the writer in 1894, four held four eggs each, nine held three incubated eggs each, four contained three fresh eggs each, and six contained three young each.

I believe that only one brood is reared in the season in this section. I have carefully searched for second nests without being successful, and never found nests containing fresh eggs after June 28th. If the first nest and eggs are taken or harried, a second attempt at nidification will generally be made in the vicinity of the first site.

The female is not a close sitter, and is seldom surprised on the nest. On only two of the twenty-three nests mentioned were the birds sitting, and these two were found at dusk after most birds had retired for the night; in fact, it was so dark that the nests would have been overlooked had not the birds revealed their homes by their hasty flight. When the nest is disturbed, the parent birds frequently flit about in the foliage of the adjacent branches protesting with their "queet," and often betraying much anxiety during the examination of their snug premises. Usually, however, they appear to take little interest in the fate of their home or family.

The termination of the breeding season brings little or no change in the habits of these flycatchers. They are then more noticeable, as their ranks have been recruited by the new generation. The squeaky attempts at singing or soliloquy are heard oftener than in the early part of the season, and the "queet" of the youngsters is louder and harsher than the softened, tender tones of the older birds. By visiting the weedy meadows after the middle of July, we may have opportunity to see these restless, spirited creatures foraging for insects beyond the drooping foliage of the hedge in which they have lived so closely.

Have the timid, retiring creatures caught the bubbling inspiration of the orchard orioles a-swing in the topmost twigs of the hedge, and followed them from their thorny altars to the meadow mulleins and vervains? Silly, deluded creatures, to fancy that their clamatorial "queet" is a fit accompaniment to the voluble music of the orchard Bohemian! But out on the meadow weeds they perch with restless manner, head erect, and alert for low-flying insects that they recognize as their prey, ever flirting their tails in the nervous motion characteristic of the fly-catchers. Even out under the clear dome, with the blue bending over them so invitingly, they never seek to rise above their accustomed limits, and their sallies from the weedtops and low brush-heaps are never far or high. Thus from one station to another they forage restlessly; and true to their instincts, when disturbed they seek shelter in the mazes of the hedges with which they are so well acquainted. They depart for their winter homes in tropical regions late in July, and after the first week of August only exceptional loiterers are seen in this latitude.

GOLDFINCH.

In our spring rambles along the hedgerows we have frequently heard the merry notes of the goldfinch, and we have turned to watch the gay little creature rising and falling overhead in rhythmic time to the sweet ditty which attracted our attention. Through the spring and early summer he flits here and there with his companions, fancy-led and care-free; and it is only after most of the birds have reared their broods and forgotten their songs that he begins to take life seriously and sets up his establishment in the form of a down-lined cup on a convenient part of the hedgerow. What if he is dilatory in arranging his household? He expects to remain with us to give color to the winter landscape, after having scattered golden cheer in the parched and dusty summer.

The goldfinch is one of our few permanent residents, and hence he merits our warm friendship, though at times he seems to forfeit it by entering our gardens with-

out our welcome or consent, and regaling himself with the stores of seeds. In the extremely heated season, when most songsters are either silent or heard only at early morning or at dusk, the goldfinch twitters his merriest ditties as he floats overhead on imaginary billows, or chants gayly by the roadside from a mullein spike, or in the garden from lettuce or sunflower stalk. Later in the fall, when one by one the birds of our summer rambles are missed, the thistle-bird becomes more abundant than ever, with no thought of forsaking us to seek a more pleasant clime. How can we fail to admire his joyful ways, his sympathetic plaint, and his fine hardihood!

In the season of their greatest animation and song, we may hear the merry creatures almost at any time and at any place. Into our gardens they bound with joyous calls, and, swinging on the heads of the lettuce and radish stalks that were overlooked and are now ripening with seed, they chatteringly manifest their relish for the downy pistils; or upon the larger disks of the sunflowers, now turning black with their juicy akenes, they swing on the roughened rims, and pick out the crowded contents. Even as we pass along the roadside, we hear their calls as we near them, and see them balancing on the heads of the thistles growing plentifully beside the road, pulling out the cotton-trimmed seeds in pretty manner, and sowing them upon the breeze, desiring them either to line their gossamer-covered homes or to feed to their tender nestlings.

The male and the female are usually together, unless the delicate pale-blue treasures demand the brooding of the mistress over her home. Arm in arm they travel over their extensive domains, whiling away the hours, or seeking the best of the bountiful store now spread for their taking. As becomes these gay revelers of the late summer, they are seen in their brightest robes; and as we see them seated in the strong sunlight on adjacent heads of thistle, we can observe the striking attire of our little friends. They both have nearly the same rich lemon dress, though the back of the female is darker. The yellow of the male furnishes a rich background for the jet trimmings of his suit; and the black wings, tail, and

jaunty cap stand in vivid contrast to the gamboge yellow. In the sunlight it seems to us that the wings and tail of the female are not one degree less jet than those of her spouse; and has she the same black forehead? It seems so at first glance, but it is only the jet depths of her bright eyes that cause them to appear as though surrounded by a circle of black. And now away they go in perfect accord, bounding upward with moving wings, and curving downward with folded pinions, uttering their short measures as they rise with the movements of the wings; and perhaps circling about us, they alight in the spot from which they were startled—joyous, careless creatures.

The goldfinch expresses his joy from all situations—either flying or a-perch on swaying thistle-stem or swinging sunflower. I have seen descriptions of his singing, in which he is represented as uttering his flight song on the crest of each wave; but of the many individuals that I have heard sing in Illinois, none sang while at the highest point of the curves of its undulating flight. The ditty is begun as the songster enters the upward path, and is executed as an accompaniment to the movement of the wings that carries him upward, and the song is usually finished before the crest of the wave is reached.

I wonder whether many bird-lovers have heard the ecstatic love-song of the goldfinch? I heard it first on a fortunate afternoon in July, and it lingered in my mind for many a day. I first saw the joyous performer sitting on one of the upward spires of a small osage tree, where he was chanting his short, happy measures. Soon he took wing and rode the imaginary aerial waves in an irregular circle above the tree, uttering his flight song, and occasionally prolonging it into the voluble chatter that forms the longer performances of this bird. Round and round the circle he bounded, becoming more rapturous with every circuit, until finally his ecstasy exceeded the limits of his little breast, and he fluttered abruptly upward, pouring forth a stream of sweet, softened, hurried notes. Thus he rose for forty or fifty feet, when his powers failed, and with closed wings he darted back to his original perch, where he continued his bubbling song. Such ex-

hibitions of ecstatic joy are not seen commonly, and are observed only in the immediate vicinity of the nest.

In this region the nest of the goldfinch is seldom furnished with its complement of eggs before the first of August. This late householder prefers hedgerows of osage orange, growing from eight to fourteen feet high, in which to build his home, though he nests in orchards and in shade trees, woods, and shrubbery. The nest is generally placed at a point about three-fourths the height of the hedge, against the inner side of an obliquely ascending branch, where forking twigs afford a firm support; but frequently a nest is found saddled upon a horizontal bough. Of eighteen nests found and examined by the writer in 1893, one was saddled as above stated. In orchards and gardens the goldfinch generally chooses a site among forking branches in younger trees, and in woods its home is similarly placed in saplings and smaller growth. In villages and cities it finds suitable sites for nests in the maples and elms along the streets.

The foundation of the nest is woven around the branch, and also around neighboring twigs. The structure is made of fine strips of bark, dried grass, weed fibers, and cobweb, nicely rounded into a compact cup about three inches deep and two and three-fourth inches in diameter externally. The cavity is one and one-fourth inches deep, and slightly less than two inches across. It is delicately and evenly lined with milkweed and thistle down, and sometimes a few horse hairs and threads, the latter being probably picked up on excursions to the door-yard. The down is laid in with such skill that when disarranged it exposes a surprising quantity to be packed into a space so small; yet their little bills have such a knack of disposing it that nest-building with them is a very rapid process, and the structure seems to spring into existence as though by magic. The eggs are pale bluish white, rarely spotted. Four to six eggs form a complement. They average .65 by .50 of an inch.

The home life of the goldfinch reveals a wonderful attachment existing between the owners of the down-lined establishment. No cavalier of olden time ever attended his lady-love more devotedly than our little black-capped

friend attends his mate, whether she be at home or abroad. As she sits lightly in her dainty home, he swings on the hedge near her, and gossips with her about the happenings of his late quest for lettuce and sunflower seeds. Indeed, he need not go far in search of food; for at the base of the hedge below the nest the pink tufts of the thistles have already ripened to brown, and he need only to flutter down from the side of his mate and gather from the stores. Near the site of the nest they flutter and chant; and when the gentle mistress leaves her cares for a brief run about the neighborhood, he bounds along at her side to attend and interest her. When the young gladden the hearts of the patient pair, they curve away from the nest in company to gather the downy food relished by the hungry brood, and, returning together to the nest, they utter their sweetly plaintive notes a-perch of adjacent branches.

The anxiety of the female is eloquently expressed by the syllables "pee-pee," repeated at intervals, uttered in a wonderfully touching and appealing manner; and it is probable that the specific name *tristis* was given to the species from the sadness clearly expressed in the tender plaint. Frequently she says "pee" several times, and follows it by her sweetly uttered "pee-pee," executed with greater force and sympathy. The male is generally close at hand, and he adds his plaintive calls to the sad expressions of his mate.

When the youngsters, grown until they find the little habitation too crowded for further occupancy, are ready to leave their home, the little family goes forth to swing all day upon thistle-head, sunflower, and ragweed stem, along roadside, railroad, and in garden—united, loving, and happy. It is one of the pleasant sights of the late fall to observe the happy parents leading forth their younglings after the nest has served its purpose. The merry youngsters bound from one thistle-head to another, and the gentle call notes of the fond elders suggest the lessons they fain would impart to the careless hearts flocking about them. The roving life has commenced, but the family ties are not to be broken, and the chill winds and freezing snows will only tend to bind more closely

the harmonious circle. Little do they regret their summer beds of down, so long as alder and sumach swamps satisfy their hunger and furnish them shelter for the night. Happy were we could we face the darker side of life so merrily and boldly as our little friends the goldfinches!

We are glad that we are not to lose the companionship of the charming little goldfinch at the approach of frosty blasts. However, he prepares for the more serious side of life, for he seems to know that it is no holiday matter to face the breath of winter, even in this temperate latitude. As the schoolboy feels the impropriety of his straw hat and the youth his russet shoes on the approach of frosty weather, so the little reveler of the spent summer apparently realizes that his bright colors must be laid away until the flow of the tide of life. Late in October and early in November he falls into accord with the changing mood of nature, and sensibly dons a suit more in keeping with the life he is to lead in weedy patches and swamps, or wherever he can find food. With his small family or a little company, often with hundreds of companions, he resorts to such localities as furnish seeds for the taking. If he were not such a persistent little gleaner, we should then call him a tramp! He is, however, only adjusting himself to the changed times; and in his brown overalls and jacket he works sturdily for his daily fare, and whistles merrily as he labors.

Our little friends have learned to be merry, whatever their lot; and even in the depths of winter they call at times as gayly as in the warmth of July and August. In the winter they share their joys and sorrows as before with their unbroken families, and in their resorts they find others of their kind gleaning the stores from the weed-tops. Frequently the merry chatter of scores and even hundreds of the brown-clad gleaners can be heard in the weed patches, and we are perhaps surprised to learn that the late summer revelers have been transformed into winter harvesters. They are merry Bohemians now, and wander here and there in troops, remaining in any locality while their food is uncovered of snow, and flitting to another neighborhood at the failure of their stores.

Surely if they are ever *tristis* it should be when their wintry fare is under the drifted snow; but even then their gay calls mingle in the swamps with the tinkling notes of the juncos and tree sparrows, and their manners are much the same as in the old summer days, excepting the courting and nest-building and home-life—all fountains of song and gladness. Why should they be sad? They know that spring will soon plant the dandelions over the transformed face of the meadows; and when the cottony seeds supplant the yellow of the spreading rays, the old life of song and revelry will begin anew. Sitting on the ripened disks of the dandelions, they can again pull apart the downy pistils and sow them upon the warming southern breezes, and bound here and there in the sunshine that they love so well. They know that they, too, like the Cinderella of our childhood, have a fairy god-mother who will transform their winter robes of brown into the brilliant robes they formerly wore, and under her magic wand their rusty garbs will glow with the lemon and jet. Thus they are ever happy, scattering cheer amid the gloom of winter as well as in the brightness of summer, and winning their way into the friendship of every lover of nature.

THE CUCKOOS.

To one who regularly studies the manners of the tenants of the hedgerows, the slender, lithe forms, and the coarse, guttural notes of the cuckoos become characteristics of the avian life of the osage orange rows. However, owing to their reserved disposition, secluded habits, and noiseless, owl-like flight, these shy denizens of our hedges, woods, groves, parks, and orchards are strangers to most persons not specially interested in the birds. Their hollow, croaking notes, heard in the summer from the shade trees of our streets and parks at all hours of day and even at night, are popularly thought to portend rain, which belief has suggested for them, and particularly for the yellow-billed species, the titles of "rain-crow" and "rain-dove." Throughout June, 1893, the calls of these

birds were very noticeable at my home, yet in the whole month we had no rain there. On the night of the 23d of June, while I was out in the open air at 9:30, watching an ominous cloud that was rolling up in the west, the weird notes of a rain-crow fell on my ears like the exultant laugh of a storm demon. However, the omen failed, for the threatening cloud passed over, and left us as dry as we were before its appearance. Usually the guttural calls of these birds are the only indications of their presence. Frequently, however, one is seen flying toward grove or tree with graceful, level flight, uttering its notes as it nears its stopping-place. They generally fly low, the line of flight commonly being no higher than the middle point of the foliage of average-sized elms and maples.

The yellow-billed cuckoo inhabits all the United States, but it is found in limited numbers in the extreme west and north, for its range appears to tend towards the east and south. In central and southern Illinois it largely preponderates over its black-billed relative, which seems to complement the range of the former by increasing in abundance toward the north, though both are generally found in the same locality in the United States. The black-billed species appears to preponderate from Pennsylvania northward, extending its habitat into Labrador. These tardy birds seldom arrive in this region (39 degrees, 20 minutes) earlier than the first of May, and frequently they linger on their way, and we note their absence until the middle of May. Exceptionally early migrants, however, sometimes come to us in the last week of April.

In their nidification the cuckoos are famous for their irregular and slovenly habits. The interval between the laying of the successive eggs is often so prolonged that frequently the eggs earliest deposited are hatched when the later eggs are yet fresh. Nests are found containing eggs in various stages of incubation, and sometimes the eggs of both species are laid in one nest. Both species are occasionally parasitic, dropping an egg now and then into the nest of another bird, though their own nests have already been constructed. The period of nesting in this locality extends from the first of June to the middle of September, and doubtless two broods are often reared. I

believe that individuals nesting later in the season are more regular in depositing and incubating their eggs than the owners of earlier establishments. My record of August nests for 1893 shows more regularity in nidification than is generally credited to these birds. Some observers report that the females often lay their eggs while the nest is unfinished, the male adding to the structure while the female incubates—a fact observed in the domestic economy of the ruby-throated humming-bird and certain other species.

In this locality the yellow-billed cuckoo nests in hedgerows of osage orange, and in groves, orchards, woods, and thickets, and in the ornamental and shade trees of parks and streets. Orchards, thickets, and shrubbery in swampy tracts are selected by the black-billed species, it appearing to nest in bushes and lower growth more frequently than its yellow-billed relative. The species preponderating in any locality appears to be more familiar in its habits, the other retiring to the dense swamps, thickets, and woods to rear its young. Hedgerows long untrimmed, sending out large horizontal branches, furnish preferable sites; and the structure is placed where intersecting twigs form a firm support, at a distance of five to eight feet from the ground. In trees the nests are placed higher, though generally the site is on a horizontal branch, where diverging limbs give an assurance of safety. Nests placed in bushes vary in situation from the top of the bush to a foot from the ground.

As a rule, the nest is a very shallow, flimsy affair, and resembles the hastily constructed nest of the mourning dove, both in composition and construction. It is made of coarse dead sticks and roots, laid loosely together, with a very little dried grass, or several soft dried leaves, intermixed in the middle for lining. There is wide variation in the amount of material used in different nests, and perhaps the greater number lack any lining whatever, being so frail that the eggs can be seen from below. The black-billed species appears to have a clearer idea of strength and durability, judging from its work, than the yellow-billed cuckoo. Occasional nests show considerable effort on the part of the builders. One of the best specimens of

cuckoo architecture I ever found, the work of a yellow-billed cuckoo, was made of sticks and roots of weeds, interwoven with which were dried corn-husks, grapevine bark, and dried leaves. The cavity was three inches across and one inch deep. I took this nest and its three eggs, and five days later I found a new structure near the location of the first, containing two fresh eggs. This second nest was made of twigs and many stalks of the bloom of Indian corn, and a bunch of corn silk two inches thick for bedding. The materials were close at hand along the hedge. This may be called energetic work even for species less dilatory than the cuckoos.

The eggs of the yellow-billed cuckoo are light green in color, and average in size .90 by 1.30 inches, varying much, however, in different complements and in different eggs of the same set. The eggs of the black-billed cuckoo are a darker greenish hue, and average .80 by 1.10 inches, exhibiting the same variations in size as those of its relative, so that generally the eggs of the two species can not with certainty be distinguished by size. The number in a complement varies from one to six, though three and four are the usual numbers. I have frequently found the cuckoo industriously incubating a single egg which was ready to hatch, and again a friend of mine once found a nest containing six eggs which were nearly fresh.

The cuckoos when incubating are either fearless or unsuspicious of danger, as they can usually be approached by a cautious observer to within arm's length, thus allowing positive identification of the species. The yellow-billed cuckoo may be known by its having the lower mandible, except the tip, yellow, as well as the cutting edges of the upper mandible, while the black-billed species has the bill entirely black. When approached from behind, the bird on its nest closely resembles the mourning dove, the long tail with white under parts and the carelessly built nest furthering the resemblance. Frightened from its nest by the motions of the intruder or by other means, the bird glides silently to a neighboring branch, and soon betakes herself away with low, even flight. No noisy fluttering about the spot nor other signs of apprehension mark the actions of these singular birds, as is usual with

most birds when their homes are disturbed by the prying bird-lover.

It may seem paradoxical that creatures so proverbially lax and dilatory in their domestic arrangements as the cuckoos, are endowed with maternal instincts as strong as the birds more markedly regular in their family duties. When circumstances give them occasion, however, the mother cuckoos discover a regard for the welfare of their offspring deeply rooted in their hearts, and at times they seem to suffer intense anxiety when the safety of their helpless younglings is at stake. Once in the middle of September I chanced upon a young yellow-billed cuckoo fluttering against the panes of a small window in an out-house. He had entered through the door which stood open within a yard of the window, but the latter was higher than the door, and like most birds that unwittingly enter a room, he sought escape at the highest opening. When I captured the frightened straggler, though I handled him as tenderly as his nervous actions would admit, and sought by gentle treatment to quiet his groundless fears, he struggled desperately in my hand and screamed piteously in a sharp, squealing tone. On taking him into the open air, I noted that his plumage was yet undeveloped, and I wondered at the tardy nidification of the parents.

The shrill cries of the youngster must have sent a pang of distress through the heart of the mother, who was lurking among the foliage of an adjacent tree, and she glided into view in the lower shrubbery, determined to make an effort to secure the release of her unfortunate offspring. Low among the stems of the bushes she reeled, fluttering her slender wings and vibrating her frail body as though about to fall upon her side at every movement she made. As the cries of the young bird became more appealing, they touched a yet deeper chord of love in the parent's heart. She glided yet nearer before turning away, croaking her characteristic call and fluttering from one low perch to another somewhat farther, to entice me to pursue her and forsake the hapless object of her affections. It was indeed a touching appeal, and I regretted that I had held the little unfortunate so long, though the

event had revealed a depth of maternal devotion I had not suspected to exist. When I released him the youngster glided away over her head and the parent darted after him, now soothing him with the same guttural call, doubtless full of meaning to his youthful ear.

The highly beneficial character of the cuckoos in their economical relations has been clearly demonstrated. An examination of the food of a black-billed cuckoo by Prof. S. A. Forbes revealed the fact that three-fourths of its rations consisted of cankerworms, and an additional twenty per cent. was made up of other caterpillars. I once startled a yellow-billed cuckoo from the ground at the base of a low ornamental hedge along the sidewalk in the resident portion of my native village. The bird flew up from the space between the walk and the hedge, just at my side. As it fluttered over the walk and alighted in the road about twenty feet from me, I saw the silvery gleaming, gray abdomen of an insect, which the bird held in its bill and which I easily identified as a harvest-fly, when the cuckoo turned its head to watch my movements. At that moment several chickens ran up to take the bug from the bird, whereupon the latter flew away with its prey, and this time it passed out of my sight among the trees in a neighboring yard.

It is a well-known fact that the cuckoos prey on various species of large hairy caterpillars which few birds will touch. Insects, however, do not comprise their entire bill of fare. The yellow-billed cuckoo is noted as feeding on black and white mulberries (see Report of the Secretary of Agriculture, 1890, page 285), and it may doubtless be found to feed upon other similar fruits. Its habits in gardens and orchards should be carefully watched that reliable data may be obtained concerning this point.

IV.—BIRDS OF THE BUSHES.

"The birds around me hopp'd and play'd,
Their thoughts I can not measure—
But the least motion which they made
It seem'd a thrill of pleasure."

—WORDSWORTH.

IN his "Tragedies of the Nests," the naturalist and poet-essayist, John Burroughs, asserts that a line five feet from the ground would run above more than half the nests, and one ten feet would bound more than three-fourths of them.

The observations of students of bird-life have verified the fact that most of the birds build in low situations. The bushes along the country roadsides and in the woods, and bordering the ditches and streams of our prairie regions, have a great number of feathered tenants, which are quite likely to escape the notice of the unobservant. The trained observer, however, seldom passes such shelters without inspecting them, and thus he finds interesting objects of study where the uninitiated would not even suspect their existence. Some of the birds of the bushes are so familiar in manners and attractive in attire that they are comparatively well known; while others equally abundant are seldom noted, having shyer dispositions, and little glow of color in their plumage.

THE SONG SPARROW.

Along the road from my home to the school building in my native village—a road over which my chosen vocation daily called me for the greater portion of the year—was an old mill. A few years ago the structure was removed, leaving the site vacant beside the pond which furnished

water for the mill engine. Around the margin of the neglected pond soon appeared a growth of weeds and bramble, new forms soon flitted about the spot, and now the vicinity is melodious through the spring and summer with the chanting of the song sparrows. Thenceforth it became a part of my daily experience to enjoy the morning effusions of these persistent songsters when I passed the spot, from early March to late August. Leading from the mill-pond is a shallow rivulet, which traverses the neighboring gardens on its way to the broad meadows bordering the village. In the gardens other song sparrows dwelt, and from the top of fence-post, stake, bush or tree almost incessantly arose the "plee-plee-plee" and accompanying cadenza of the tireless musicians. Near my home was a garden of a fruit-grower, whose raspberry and blackberry bushes formed a desirable resort for many feathered songsters. There the song sparrows led a happy and unmolested existence under the protection of the flapping scare-crows.

Along the brushy borders of the lazy creek north of the village the song sparrow first sought to enter the circle of my bird friends, and I was not slow in responding to the claims of the energetic, nervous little songster. His streaky form and happy voice were additional charms to the stream-side along which I so frequently wandered. How could I resist those generous measures, welling up from a heart made happy by the cozy home under a chosen brush-heap? Or how could I watch my idle corks when the restless movements of my little friend claimed my attention, as he shifted his station from one vantage-point to another? Thus led by the witchery of the little brown-coated songster, I frequently strolled along the haunts made brighter by his presence; and in the inviting shade of some favorite fishing station I whiled away the time between the slow "bites" by listening to the voices and observing the movements of my avian friends. The leafless branches of a deadened tree, prone in the water near my retreat, formed a favored place from which a particular male song sparrow uttered his ditties. I soon learned to know his voice and appearance. Flitting to a perch among the branches, sometimes almost whirled be-

yond the contemplated station by the strong summer wind, he would repeat his strains many times within a few feet of me, apparently regardless of my proximity. Then he would flit farther along the stream, and sing for another period from another situation. Presently I might hear him rustling among the shrubbery on the opposite bank of the stream. I would see him hopping daintily along the water line, gleaning morsels for his afternoon lunch. Sometimes he would take an afternoon bath, after which he would flit to his station in the warm sunshine, where he would preen himself carefully and utter his pleasure in his happy lot. Sometimes I would lose sight and sound of him for a time, but later the familiar voice would arise from a convenient situation near me, and thus he sang his way into my warmest friendship.

The song sparrow abounds in eastern United States and British Provinces, ranging westward to the edge of the great plains, breeding throughout its habitat. Robert Ridgway states that it winters from about the fiftieth parallel to the Gulf Coast. (Natural History Survey of Illinois, Vol. 1, page 283.) He also says that it is known in the more southern portions of Illinois only as a winter resident. "As far north at least as Wabash, Lawrence, and Richland Counties in this State, the Song Sparrow makes its appearance in the fall along with the White-throated and Swamp Sparrows, and remains all winter in company with these and other species, departing with them in the spring. I have there heard its song on but two or three occasions, and then only in the spring, just before they took their departure."

In this locality of central Illinois the song sparrow is one of the common species. While not familiar after the manner of the robin, bluebird, house wren, and chipping sparrow, it haunts bushy gardens near habitations and exhibits no spirit of shyness when in the vicinity of man. While fishing along the streams it frequents I have known it to perch within a few feet of me and pour forth its notes regardless of my presence, though clearly aware of my proximity. Mr. Ridgway states that in southern Illinois the song sparrow is "very retiring, inhabiting almost solely the bushy swamps in the bottom land, and

unknown as a song bird. The same are probably its habits throughout Illinois and adjacent regions."

In this region the song sparrow appears early, closely following the bluebird, robin, and meadow lark, and singing from the first morning of its arrival its sweet and varied cadences. Very few of the days of late February or early March, whose genial sunshine heralds the spring, are allowed to pass before it comes chanting from regions farther south where it has been strangely silent and retired. Thus we class the song sparrow among the earliest of our spring songsters. It is certainly one of the most persistent, for daily through the spring and summer it practices its strains at its accustomed stands, when many other species have long been silent or else have departed from our latitude. The generous measure of its melody has done more than the quality of its music to render this sparrow a favorite; and its hardy facing of March winds and storms to enliven this ordinarily disagreeable month, adds to the estimation in which the song sparrow is commonly held. However, in Illinois this familiar bird appears to be somewhat neglected. Its song is loud and cheery, and it comes into our gardens and door-yards to sing and to rear its brood, yet few persons it thus favors with its music and presence are well acquainted with the hardy author of the chant which so frequently greets their ears.

There is a wonderful variation in the songs of two individuals and even in the songs of the same bird. Frequently I have heard two males near each other singing strains so unlike that I was impelled to believe that the songsters were of different species. The ordinary song begins with three or four repetitions of the syllable "plee," followed by a cadenza variously accented and executed in more rapid time than the opening notes of the song, usually in a regularly ascending scale. After the conspicuous silence of the birds we long to hear, the voice of the song sparrow to the bird-lover is wonderfully attractive, and possesses a charm not based upon its intrinsic merit as a musical production.

The song sparrow is truly a bird of the bushes and the tangle, but whether in town or country makes no differ-

ence to the little songster of early spring. Mounting to the summit of a small tree, or perched on a fencepost or convenient stake, it proudly erects its head, and with tail pendent it chants regularly throughout the day. On its northward migration it sings from gardens, hedgerows, and low trees in all situations, it and the meadow lark filling our suburban and rural districts with incessant melody through the first three weeks of March, unless the weather be unusually severe. Later, it resorts to the haunts already described, and only near its nesting-places is its chanting heard, unabated during the period of incubation and family cares. Even during the drought and heat of summer it does not neglect to practice its chant from the familiar perch.

The nesting habits of the song sparrow are well known to its intimate friends. Bushes, brushpiles, and tussocks of grass along the banks of streams and ponds, and along hedges and roadsides are generally chosen for early sites, though bushes in gardens and pastures are not neglected. In fact, the nest of this species has been reported in almost every sort of situation below fifteen feet above ground, in trees, and even in cavities in orchard and forest trees. The majority of the nests are placed on the ground in grassy nooks among twigs of fallen branches. Where hedges along ditches have been trimmed, and the brush has lain neglected in the grass, the song sparrow finds convenient sites for its lowly home. In "*Birds Through an Opera Glass*," Miss Merriam says: "In choosing the site for its nest, the song sparrow adapts itself to circumstances with the grace of a true philosopher. At one time content with making a rude mat of straw at the bottom of a roadside brush heap, at another it builds in a willow, using the woolly catkins to soften the bed; and frequently it nests right on the ground, when the farmers call it the 'ground sparrow.' But the prettiest site of any I have known was in a sweetbriar bush on the edge of the garden. Here the mother could be lulled into her noon-day nap by the droning of the bumble-bees buzzing about the garden; or, if she chose, watch the fluttering butterflies and quivering humming birds hovering over the bright flowers. Every breath of air brought her the

perfume of the briar leaves, and when the pink buds unfolded she could tell off the days of her brooding by the petals that fluttered to the ground."

The nest is formed outwardly of coarse materials, such as corn husks, stems of weeds and grasses, twigs, and rootlets. There is usually an intermediate layer of finer dried grasses and an inner lining of horsehair. The cavity averages two and a half by three inches in diameter, and two inches in depth. It is a firm structure, generally fashioned while the materials are damp, thus rendering the affair more compact and durable after it dries in position. The eggs number from four to six, and are light bluish-green, spotted with various shades of brown, the larger end commonly having the spots more noticeable and often forming a wreath. Davie states that they range from .75 to .85 of an inch in length, and from .55 to .60 of an inch in breadth.

When disturbed in incubating and startled from her nest, the female hops or flies about with gentle "pip" of reproof, the male adding to her remonstrances against the intrusion of their quiet home. When the intruder has departed, the low chirping gives place to the accustomed chant of joy and peace.

In this locality the song sparrows cease to sing about the twentieth of August. They resort in families to the bushy margins of water-courses, and to weedy patches, brush heaps, and hedges, associating with young towhees and wrens. From the middle to the last of October migrant song sparrows are seen in their haunts, shy and silent, skulking in the bushes and weeds, feeding on dried berries of the sumach in woods and along roadsides, and on the seeds of various weeds. They perhaps at times feed on the small berries of the gardens they frequent, as the species is mentioned by Dr. C. Hart Merriam in a partial list of birds which feed on mulberries, actually observed by Dr. A. K. Fisher and himself. (Report of the Secretary of Agriculture, 1890, page 285.)

As quoted from Robert Ridgway, the autumnal migrations of the song sparrow are made in company with the white-throated sparrow, the swamp sparrow, the fox sparrow, and other related species. They leave this locality

about the first of November. The white-throated and the fox sparrow remain in our latitude, though the latter is seldom seen in the mid-winter and evidently journeys farther south to avoid the severest weather. In 1894 I saw the last song sparrow of the season on the 10th of November, a solitary individual sitting in the top of a brush heap. When the familiar "plee" was wafted to my ears, I eagerly yet quietly pushed through the bushes to catch a glimpse of the belated traveler, and soon espied him, chanting as blithely as in early spring. He had no desire to have an auditor, however, singing apparently for his own pleasure, and, becoming aware of my interest in his actions, he flitted into an adjacent hedge and again sang as before. Upon a further interruption, he dropped into the weeds bordering the hedge, and became lost to my observation.

Those who do not know the song sparrow can readily identify it by the streaks on the throat and sides of the body, the streaks on the breast often forming a distinct spot, which Florence A. Merriam prettily describes as a dark breastpin. Its upper parts are reddish brown, streaked with darker brown and gray, while the lower parts, except those mentioned, are dingy white.

TOWHEE.

One of the showy birds of the bushes, not so well known as his attractive qualities deserve, is the handsome towhee. His shy disposition and lowly home have caused him to be overlooked, except by interested observers, and most people are ignorant both of his name and existence. He merits a wider circle of acquaintance, however; for he comes to us early in the spring, usually preceding both the brown thrasher and the catbird, and remains until late in the autumn, and his manners are above reproach. He is no lover of city or town life, nor does he aspire to occupy a high position in the world. Fitted by dress and manners to mingle with the best classes of avian society, he modestly chooses to pass his time near the bosom of mother earth. Now and then, however, he ascends to the

summit of the tallest tree in his domains, and dispenses to his neighbors generous measures of real though monotonous melody.

Dr. Coues gives the habitat of the towhee as eastern United States and British Provinces; north to Canada, Minnesota, and Dakota; west to Kansas; and in the Missouri River region to about the forty-third parallel. Northerly perfectly migratory; wintering from middle United States southward; and breeding nearly throughout its range. Robert Ridgway states that the species is resident south of the fortieth parallel. In my home neighborhood, which is open prairie in about thirty-nine degrees and twenty minutes north, it is a regular migrant, local influences doubtless being unfavorable to its permanent residence.

The towhee reaches our neighborhood in its northward migrations on widely varying dates. I first identified it in 1881, April 29th, and it doubtless had then been in the vicinity some days before I observed it. In 1882 I saw the first towhee of the season on February 12th, when it was hopping in and about an evergreen tree in town. It was April 28th when I observed the earliest towhee for 1883 in the woods, and March 18th brought the first migrant for 1884.

Like the rose-breasted grosbeak, the towhee is not seen long on the wing, nor does it make lofty flights. In ascending high trees, it alights among the lower branches, and leisurely climbs by a series of irregular hops and flights, as fancy leads it. Its migrations are made along hedgerows, bushy fences, and through patches of briers and undergrowth. From its earliest arrival in the spring it haunts heaps of dried brush, away from the vicinity of dwellings, and frequents the underbrush of dry wood-pastures, where its scratching among the dead leaves and branches will surely reveal its presence, if its characteristic "ch-wink" is unheard. In its habit of scratching among the dead leaves, it has a close parallel in the fox sparrow, whose efforts in this line are quite ludicrous, though less noisy than the movements of the towhee.

On any of our rambles through the woods where there is undergrowth of gooseberry, blackberry, and other

bushes, we are certain to hear the loud, pleasant "chwink" of the towhee, which has suggested for the species the popular name of chewink. A noisy rustling among the fallen oak leaves in a clump of May apples leads our steps in that direction. At our approach the scratching ceases, and out flits the handsome author of the noise. His head, neck, and back are glossy black, vividly contrasting with the white abdomen and chestnut sides. As he flits away to disappear under a pile of dead brush, he flips a long black tail and spreads it with a fan-like motion, exposing the pure white feathers on each side, a sure means of identification of the species with other features. Out of the brush heap he hops and then leisurely mounts to the lower branches of a small oak, whence he calls after us, "Ain't you pretty?" emphasizing the first syllable and lengthening the last word with rising inflection. When one is startled from the weeds along a hedge, it flits and dodges in and out of the bushes with noisy whirl of wings, if it is followed; otherwise it alights in the near bushes and proceeds about its private business with quiet indifference, though gradually increasing the distance between itself and its disturber.

True to its popular title of ground robin, given to the species because it passes so much of its time on the ground, and also from its similarity in style of coloration to the robin, the towhee nests on or near the ground. Bushy wooded knolls, thickets of undergrowth, and dry bushy ravines are its chosen places for nesting. The site of the structure is either on the ground, in the forks of a fallen branch, against the stems of wild berry shoots, or in the open with no protection except the surrounding stems, or indeed in any sort of lowly situation. All the nests I have found in this vicinity were on the ground.

The towhee is one of the birds regularly imposed upon by the cowbird in depositing its egg or eggs. I had never found a nest of the chewink until May 21, 1890, when I accidentally flushed a female from her nest. It was in a low, damp portion of a wooded pasture, and was set on the ground between forking limbs of a fallen branch. The nest was open above, and contained two young birds just from the egg, two eggs of the towhee, and one egg of

the cowbird, while a second egg of the latter species was lying on the ground about a foot from the nest. It would be interesting to know whether the egg outside of the nest had been dropped there by the impatient cowbird, or had been ejected from the nest by the unwilling foster parent.

One summer late in June, while rambling in a bushy wooded pasture, I startled a female towhee from the blackberry shoots among which I was walking. Almost from under my feet she painfully fluttered, and without rising from the ground, half hopping and half flying, she moved with outspread, beating wings over the dead leaves and hopped among the neighboring bushes. At first thought I imagined I had stepped on her and injured her; but as she hopped under and out of the fallen branches and into the top of a brushpile, uttering her anxious "chwink," I realized that I had witnessed a fine exhibition of maternal instinct, and that the bird was not injured in the least. Examining her more closely as she sat exposed to my view, I observed that she had not the glossy black colors of the male, but had a more feminine dress of reddish-brown, though in her nervous actions as she hopped about, she exposed the white corners of her dark brown tail when she spread it in fan-like movement. From the uneasiness she discovered, I believed a nest to be near. I searched closely in the group of bushes, but failed to find the nest until I approached the spot in the manner I had formerly reached it, when there at my feet I found the nest open and exposed to the afternoon sun. It was set in a hollow among the dead oak leaves at the base of a blackberry shoot, and was almost flush with the surface, both the materials and the eggs closely resembling their surroundings. The nest itself was formed of common dried grass, with a lining of finer dried grass and a few horsehairs. It is usually well rounded, though rather loosely woven. It is about three inches in diameter and two inches deep. The eggs vary from three to five, and they are grayish or pinkish white, with numerous specks of pink and reddish brown. They average .95 by .72 of an inch. While the female is showing her anxiety and appealing to the intruder with her plaintive "chwink" to leave her undisturbed in her family affairs, the male

sometimes arrives on the scene and adds his voice to that of his spouse in remonstrating against the invasion of a jealously guarded home.

After the nesting season the towhees become shyer and less musical than during the preceding weeks. They resort in families to the high weeds and bushes bordering wooded streams, and seek denser undergrowth than they frequented earlier in the season. At this period they associate with cardinals, song sparrows, and other birds of similar habits, feeding on the seeds of weeds and also on the insect hordes tenanted the drying vegetation at this time of summer. From the latter part of August to the last week of September my record fails to note the presence of the towhees in their accustomed haunts. This is moulting season, and with other birds they seem to disappear from the neighborhood. They reappear about the last week of September with regular migrants, when they are found along hedgerows and in brier patches near woodlands. My journal for September 26, 1893, has this item taken in the woods soon after sunrise: "Towhees chewinking in the brush heaps. They are remarkably shy, keeping so well hidden that I saw but one, a female, though I heard several and tried to find them." The females preponderate for the first week, after which the males outnumber the females. On October 14, 1893, I noted that towhees were becoming less numerous, though they remained until October 26th, when the last regular migrant was observed in a hedge bordering a wooded pasture. However, on November 4th a crippled female chewink was observed gleaning among the weeds in a dry ditch crossing a ploughed field, where no towhees had been seen through the summer. It was evidently a belated specimen.

The shy nature and wary habits of the towhee are manifested most strongly in its nidification. In my earlier years I frequently searched long and carefully for the nest of the chewink, but was always obliged to await the solution of the mystery. On one occasion in an early morning ramble in spring, I detected a male towhee carrying a straw or piece of dried grass. Immediately I was all enthusiasm to think that at last I had a clue to a nest,

and I fixed my eyes on the bird to note his further movements. He, however, was fully as wide awake as myself, and I knew by his furtive glances toward me that he suspected I was quietly taking notes. After hopping indifferently for a yard or more, he carelessly dropped the stem and unconcernedly hopped away in and among the bushes, as if he had given up further work for the day. I was completely baffled, for though I lay in wait near that place several different times on succeeding days, and afterwards searched the vicinity closely for a nest, I saw no more of the construction of the nest, and indeed do not know whether it was finished or a new site chosen.

The female towhee is a close sitter, and can usually be surprised while brooding her egg or young. In fact, the nest can generally be found only by flushing the sitting bird from the spot. Not long ago a friend and myself were rambling through a brushy ravine in the woods, and were climbing up one side of the branch. He had just passed up ahead of me, though I was close at his heels, when right behind his foot and almost in my face fluttered a towhee. Feigning injury, as usually does the female when startled from her nest, she flitted over the bank and disappeared among the bushes. Standing still in my tracks, I glanced about for the nest revealed by the actions of the owner. Failing to discover it by looking down, I stepped back and looked up the steep slope. A suspicious hollow under a horizontal elm shoot caught my eye. There was the nest, one of the prettiest and best hidden I ever found, set almost under the roots of the out-growing twig, yet where the mother bird could peep out and catch glimpses of the warm midday sun in her cool retreat. Even in her well-concealed home, however, the eager eyes of the cowbirds had espied her snug and cozy sitting-room, and there with her own two eggs lay four eggs of the skulking parasite, two having been deposited by each of two different females, from their obvious resemblances and differences, two and two. Think of the burden imposed upon that anxious mother, to care for four hungry urchins who would quickly starve her rightful offspring by offering their great gaping, yellow mouths for every morsel of food she could carry to the nest!

Kind Providence had a different fate in store for her, however, for several days later there came such floods of rain that the swollen waters of the little stream overflowed its banks, dashing away every loose particle in its path, and on visiting the spot after the subsidence of the water, I found no record of the existence of the once cherished home of one of my wildwood favorites.

BELL'S VIREO.

Though not uncommon in this locality of central Illinois, Bell's vireo appears to be quite unknown except to the enthusiastic observer and the trained ornithologist. Its domicile is seldom harried by wandering small boys, and even the earnest bird-gazer must bend in humility when he seeks to further his acquaintance with this little greenlet by visiting it in its bushy haunts. It is no gad-about or peddler of village gossip, but passes its days contentedly warbling literally "under its own vine and (fig) tree." Indeed, it appears to care nothing for the friendly associations with other birds so noticeable in the habits of some species, being a regular hermit in its life among the bushes. I once found a cuckoo nesting in a tangle of grapevines, among whose drooping twigs Bell's vireo had swung its tiny cup; but the unsocial ways of the cuckoo would preclude any degree of familiarity between the strange neighbors. Even when the white-eyed vireo is dwelling in the same tangle with Bell's vireo, there is a mutual indifference to the association, and each places its nest where it may have its limited range without becoming familiar with its neighbor.

Like the other vireos, this little but spirited creature does not present its best manners and warble its sweetest notes among strangers. It sings the most forcibly and gayly near the vines and bushes where hangs its gossamer-thatched home, hence its singing in any particular vicinity is a pretty certain index of its nesting somewhere at hand. So nearly is its entire time spent among the low bushes and tangled growth of thickets and ravines that it is seldom seen outside of the covert, and then only momen-

tarily as it darts out in flycatcher-like manner, turns hurriedly in air, and darts back into the cover. When taken off its guard, it may sometimes be seen to perch for a few moments on a low stem or fence, just without the border of its bushy domains, uttering its hurried, confused ditty, before it turns again into the tangle. The chief evidence of its existence is the short, emphatic, vireo-like notes coming from the bushes—a warble shorter than the song of any of the other vireos, uttered nervously, with increasing force and pitch to the end.

The performer himself is shy, and avoids listeners. At first he is heard ahead of us, and we see him flit out from the foliage, quickly turn and dart among the leaves again, uttering a low, forcible “quit” as he sports with his spouse and chases her through the shrubbery. We gently press forward, eager to identify and observe the restless creature; but now he is singing behind us in the tangle, and only occasionally do we obtain a glimpse of him as he flits among the stems of the bushes. Determined to see more of the movements of the elfin bushman, we press aside the stems and creep into the covert, where brambles irritate all the salient features of our crouching form. Soon we hear the restless little creature singing even above our head. At first he says, “Quit, oh, quit, now quit, why can’t you hear?” in a hurried, confused, and nervous manner, not unlike the latter part of the song of the prairie horned lark. Then, perhaps, he soliloquizes softly, in a subdued, far-away tone, scarcely audible to our attentive ears, like the warbling vireo when it knows itself to be observed. Thus the rose-breasted grosbeak will frequently sing when under observation, and thus the brown thrasher croons its sweet melodies toward the close of the nesting season. Thus sings the little vireo whose habits we are briefly sketching, ever flirting its tail in nervous flycatcher style when alighted for a few moments, passing to and fro in its restricted range as it is impelled by its unresting spirit; and thus we learn to know and love the shy, modest denizen of the lowly bushes.

Along the edge of the woods north of my former home there was a thicket of wild plum trees bordering a shallow rivulet which flowed into a creek about eighty rods

beyond. The plum thicket has now almost entirely disappeared, and on either side of the rivulet are cultivated fields, but fringing the rivulet and the hedge separating the fields are small bushes of hazel, plum, sumach, alder and wild grapevines. It was among these bushes that I first found Bell's vireo, and there I learned something of its habits. Forty rods farther north along the same hedge and rivulet is the remnant of the plum grove, intergrown with bushes and vines, forming another tangle where this vireo sings and breeds unmolested. There, however, it has companions which sport among the branches in careless spirit, for Traill's flycatcher is so similar in disposition and habits that there it also finds a congenial home. In the tops of the slender plum trees the green heron spreads its loose mat, while in the forks of the pliant plum-shoots the yellow warbler weaves its downy cup. Across the creek into which the rivulet flows, and extending forty rods beyond, is a narrow, abandoned road between two hedges, now tangled almost impassably with bushes, creeping vines, and weeds, amid which hang the habitations of Bell's and the white-eyed vireo. There also the splendid cardinal whistles his rich notes while his less splendidly attired spouse sits upon her bark-woven home among the grapevines, and the catbird flits through the covert and provokes the anger of the pugnacious vireos.

Bell's vireo, however, though overcoming none of its natural shyness, often takes up its residence in more public and more open situations. Wild blackberry, hazel, and other bushes overhanging ditches along roadsides, and the spreading, drooping lower branches of hedges are favorite resorts, whence its characteristic song greets the passers-by, who are too commonly deaf and blind to the sights and sounds ever inviting their attention. One June morning I found a nest of this vireo in a small clump of wild blackberry bushes overhanging a dry ditch along the road followed by the village boys on their fishing trips. It was the least concealed of all the nests of this species I ever found, and soon was overtaken by self-invited disaster, though I suspect that the blue jays were the guilty parties.

This vireo loiters on its northward journey more than

its congeners, and is the last of the vireos to make its appearance in the places it frequents. It commonly reaches this locality by the end of the first week of May, and proceeds to take possession of its former domains with its accustomed vivacity of spirit. It begins to nest soon after the middle of May, and the duties of incubation usually claim the attention of the female in the last week of this month. The nests are suspended by the brim from the twigs of the bushes it frequents, and are oftenest in low situations between a foot and four feet from the ground, though sometimes nests are found in higher situations. The typical nesting site of the vireos is in a drooping or horizontal fork, but the nest of Bell's vireo often depends from more than two twigs. It is generally well concealed by surrounding leaves, and only by pulling aside the foliage can one ordinarily find the nest, or else by getting down where one can look through the stems with the view unobstructed by the leaves.

Both male and female, being so seldom far away from their lowly home, are jealous watchers of its privacy, and strongly object to an investigation by intruders. The female is a restless sitter, and therefore is easily startled from her nest. When disturbed, both birds flit about the spot, uttering a scolding, wren-like noise represented almost exactly by the syllable "pa," pronounced like the sound of *pa* in pair, repeated rapidly, at times more rapidly by the female than one can follow by counting. In their nervous anxiety to protect their property and embryonic offspring, they do not hesitate to perch close to the disturber, and their bright eyes flash with outraged dignity and righteous indignation. At such times we can note their resemblance to the warbling vireo, yet their smaller size is seen at once, and their colors are brighter than those of the larger species.

Many nests examined show a similarity in location and construction. They are made chiefly of grayish vegetable bark fibers, a sort of light, clean, husk-like leaf in small fragments, fine dried grass, pieces of leaves and paper, and bits and threads of gossamer. Outwardly the nest has an unfinished appearance, the bark fibers and pieces of husk being allowed to hang loosely from the under side of the

nest. The lining is of fine dried grass, with here and there a circular flake of gossamer. The cavity is smoothly and firmly finished, averaging an inch and five-eighths in diameter by one and one-half in depth. Four eggs form the usual complement, though late complements often contain only three eggs. They are snowy white, spotted irregularly with blackish brown, the spots commonly preponderating around the larger end. They average nearly .70 of an inch in length by .50 in width.

It was in the summer of 1894 that my observations of the habits of this vireo were chiefly made, and since that time I have been unable to continue the acquaintance then so agreeable to me. Only lately, however, in an afternoon ramble over a gentle southern slope on which a clearing had been made, and where later a thick growth of shoots and bushes had appeared—where the yellow-breasted chat whistles and cackles and skulks, where the indigo bunting utters its persistent chant, and the field sparrow adds its sweet ditty to the afternoon chorus—there I again heard the gentle sputtering of my little friend of other days, and as before I followed him into the tangle. Among the bushy growth a small ravine breaks its way to the larger stream, and overhanging the dry bed of the ravine are clustering vines drooping into brambles below. Creeping under the vines and among the brambles, I again saw this interesting little vireo; as I watched his restless movements, his rapid flitting among the stems, his ardent pursuit of his lady love, his warbler-like manner of taking insect prey on the wing from the outward leaves, I felt that the renewal of old friendship had amply compensated me for my walk of six miles.

Like other birds which reach us later in the spring, Bell's vireo leaves us early in the summer, disappearing from its haunts about the first of August, at about the same time that Dickcissel ceases his rural monologues, when Traill's flycatcher forsakes its thorny perches in the hedgerows and is seen no more, and when our resident Baltimore orioles depart to escape the further heat and drought of summer. The vireo probably goes as far south in winter as Central America. Its summer home is the region west of the Wabash River to the Rocky Mountains, ranging north to Lake Superior.

COWBIRD.

Some birds are interesting solely because their habits and manners present wide variations from the ordinary phases of bird-life so common around us. The cowbird is one of the birds whose strange habits invite our interest, and it is no wonder that it has become notorious in an avifauna comprising so many birds whose morals are unquestioned, and whose habits are so nearly in accord with the recognized standard of virtue. Though the cowbird is well known to both scientific and lay observers, its strange behavior and stealthy movements at certain seasons have prevented the acquisition of full data concerning many features of its life, and a few unfounded speculations about its habits have become current. In our American fauna the cowbird occupies a parallel place with the European cuckoo, and boys and girls who know something of the strange habits of the latter may think of the cowbird in a similar light. The two species of American cuckoos are birds of better morals than their European namesake, and regularly make nests in which to deposit their eggs and rear their young. The cowbird, however, never constructs a nest, but deposits its eggs in the homes of other birds, and thus imposes upon them the care of hatching its eggs and rearing its young. This unusual lack of parental instinct, and the fact that the cowbird commonly imposes upon birds of smaller size than itself, chiefly valuable insectivorous and song birds, thus aiding in the restriction of such birds, have fastened on this pariah of bird-life an unenviable reputation. It is, indeed, a peculiar bird, having no attractiveness of color, no beauty of voice, and no home. No wonder that, when in the haunts of other species, it hides and skulks as it seeks a suitable and convenient habitation to house its unborn orphan!

Like our other representatives of the family *Icteridæ*, the cowbirds are migratory in this latitude, though they are resident in the southern portion of the State, with the bronzed grackles and others of their congeners. They commonly arrive in this locality about the middle of

March; and in their migration, as at other times of the year, they are gregarious, though not seen in the extensive flocks into which the grackles assemble. Following the custom of most of the migratory birds, the males commonly precede the females several days. For a month or more they spend their time together in the pastures among the cattle, or sitting along the fences and roadsides, and in trees along the edges of woods bordering fields and pastures. They frequently alight on the backs of the cattle to pick insects from the hairs, or to sit with lazy ease, their familiarity with the cattle suggesting their name of cowbird. They also follow the steps of the plow-boy, and pick up worms and larvæ in the furrows made by the plow.

We can begin our study of this peculiar bird on any fine morning after the grackles have become fully settled in their accustomed resorts, and after the finely-strung notes of the red-winged blackbirds have grown old to the ear. Then, on some bright morning, as we walk out along the roadside leading from the village, the sharp, squeaky whistle of the cowbird greets our ear, and we are guided by the sound to look for the author in the top of a bare hedge tree or other convenient perch. There he sits alone, and like the bronzed grackle in uttering his unmusical, rasping notes, the cowbird swells his body and erects his feathers, preparatory to the effort which is to produce only a shrill note, reminding us of a long, indrawn whistle. Later in the month the whistle of the male is heard almost as frequently as the note of the grackle or redwing, or the rich, melodious plaint of the meadow lark.

In their courtship the males are very gallant, and parade before the females with partly expanded wings and tail, and the feathers of the neck inflated, uttering their unmusical love-notes before dwindling to their ordinary size. They doubtless regard their appearance as quite pompous and worthy the admiration of the fair ones, though to the human observer the effect is rather ludicrous. The birds generally associate at this season in groups of six or eight, and the males are easily distinguished by the gloss of their black plumage in contrast

to the dull brown of the female. It is noticeable that in this mingling of the sexes and in the pompous efforts of the males to impress the opposite sex with their dignity, there is no attempt at pairing, and the males evidently make no demonstrations for the edification of any particular female. In fact, these birds are not known to pair for the season or for life like most other birds. While most writers state that the males are polygamous, it is perhaps true that the females meet the advances of any males which solicit their favors, and hence the females may be described as polyandrous. However, careful and persistent observation of the courting and breeding habits of the species may disclose the fact that the birds pair frequently for the summer. In a comprehensive article on the species, published in the *Ornithologist and Oologist*, January, 1890, Dr. Morris Gibbs suggests this as reasonable, and refers to an incident coming under his notice when he saw a blue jay, on the point of despoiling the nest of a vireo, driven away by a pair of cowbirds in a most valiant manner. On going to the nest he found a large, overgrown cowbird occupying the largest share of the structure, while a poor little red-eyed vireo occupied a small space at the bottom, and beneath his big foster brother. It thus appears that these birds do frequently pair and also keep watch of the nest containing their offspring, though such action on the part of the cowbird is rarely observed by ornithologists.

The destructive effects of the visit of the cowbirds to the nests they select in which to deposit their eggs are very evident to the student of ornithology who is accustomed to look for the birds in their haunts. Many nests are found deserted by the owners apparently because a cowbird had slipped into the habitation soon after the completion of the structure and deposited its egg before the owners had taken possession. I have found many nests of the field sparrow and the chippy long deserted, holding only a single addled egg of the cowbird. These two species suffer greatly from the imposition of the parasite, and I have frequently seen a pair of field sparrows leading several younglings, among which would be a

great, clumsy cowbird pressing closely after the parent birds for each newly-found morsel.

Few birds in whose nest the cowbird has succeeded in placing its eggs lay their fullest complements. Even when the usual number is deposited, the rapidly growing interloper, which commonly emerges first from the shell, robs the rightful offspring until they starve before they are old enough to leave the nest, or else until they are weakly specimens to begin the struggle for existence. The species selected by the cowbird in one locality may be almost exempt in another locality. In my former home in an adjoining county, the brown thrasher is very rarely selected, but in my present vicinity I have met several instances of such a selection. It is evident that upon many species given in lists of birds imposed upon by the parasite, the cowbird intrudes its egg only rarely, and hence a very large list can be formed. The warblers, vireos, sparrows, and smaller flycatchers are the heaviest sufferers. In my observation, the wood thrush, towhee, field and chipping sparrows, yellow-breasted chat, and the Maryland yellowthroat are oftenest selected to bear the burden of rearing the young of the cowbird.

The female cowbird generally watches her opportunity, and slips into the nest while the owner is absent in search of food or recreation. Robert Ridgway, in "Natural History Survey of Illinois," Vol. I, thus speaks of the actions of the cowbird: "It is interesting to watch the female when she is searching for a nest in which to deposit the egg she is about to lay. She hunts stealthily through the woods, usually among the undergrowth, and when a nest is discovered, patiently awaits from a convenient hiding place the temporary absence of the parent, when the nest is stealthily and hastily inspected, and if found suitable she takes possession and deposits her egg, when she departs as quietly as she came." In some instances, however, it is probable that the intruder drives the lawful occupant from the nest and makes a place for her egg by force. Frequently, also, the cowbird will eject one or more eggs of the owner to make room for her egg, or to deceive the owner and leave the same number of eggs as were in the nest before her visit, and as frequently the

owner will oust the alien egg from the nest with little ceremony when she returns. We sometimes find an egg of the owner on the ground near a nest containing an egg of the cowbird, and it is no unusual occurrence to find an egg of the cowbird lying near a nest of a species regularly imposed upon by the parasite.

Each female of this species lays at least four eggs, in all probability, sometimes depositing them all in one nest, as is inferred in such instances from the great similarity of the parasitic eggs found in one nest. It is not uncommon to find from one to four eggs of the cowbird in a single nest. A female cowbird, which had been wounded, was captured and kept for a time in captivity by Dr. Morris Gibbs, and within eighty-four hours after its capture it deposited four eggs at irregular intervals. This spring I found a nest of the towhee containing two eggs of the owner and four eggs of the parasite, and two each of the four were so markedly similar that it was fair to conclude that two cowbirds had deposited two eggs each in the nest. Other observers have been impressed with the idea that the same female frequently places two or more eggs in one selected nest. In this connection I quote from the article mentioned as written by Dr. Morris Gibbs: "In every instance that I have recorded in my note-book, and they are numerous, I have had it impressed upon me that the cowbird is influenced by the size of the nest in laying a large number of eggs in one nest, rather than by the number of eggs to be laid by the legitimate owner. Of course what we term instinct in the lower animals asserts itself in some way in these cases, and the cowbirds judge as to the ability of the contemplated foster parents to provide for the unwelcome nurslings, by the size of the nest. Once I met with a bluebird's nest in a very large excavation, containing five blue eggs and four speckled ones, and in this case the speckled eggs were evidently laid by the same female, judging from the size and markings."

As has been stated, sometimes the returned owner of the nest, indignant at the violation of its home, lifts the egg of the cowbird from the nest and places it at a safe distance, or pierces the shell with its bill and thus carries

it from the nest. Other species, notably the yellow warbler, and frequently the prothonotary warbler, determined to avoid the task of rearing the intruder, sometimes build a floor over the contents of their nest, thus incarcerating their own eggs as well as those of the cowbird, and proceed to lay a new complement of eggs. When the parent continues the task of incubating or of laying the remainder of her regular complement, if the eggs are examined at any stage of incubation, it will be seen that the egg of the cowbird is rather more advanced than the eggs of the owner of the nest. This fact has been partially explained by reasoning that the generally larger size of the parasitic egg brings it into closer contact with the body of the sitting bird, and hence it receives a larger portion of the heat necessary to incubation. Observations appear to warrant the conclusion that the eggs of the cowbird hatch in eleven or twelve days.

The eggs of the cowbird average .88 by .65 of an inch, the length varying from .95 to .67 of an inch, and the width varying from .72 to .58 of an inch. The ground is a dingy white or gray, and the markings vary through all the shades of brown, sometimes evenly distributed over the surface, and at other times predominating around the larger end. In some instances the spots are quite fine, and in others the markings are moderately large, hence there is much diversity in the appearance of different specimens. Frequently the investigator is puzzled in distinguishing the true eggs of the towhee, cardinal, and other species from the products of the parasite.

It is a fact not generally noted by naturalists that in the breeding season the male grackles and red-winged blackbirds, and the cowbirds of both sexes, nightly congregate to roost in suitable places. I first became aware of the fact on a visit to the swamp-lakes early in May, and described a roost situated near Havana, Illinois, in the *St. Louis Globe-Democrat*, June 7, 1896. In the *Observer* for July, 1896, Dr. A. K. Fisher has an interesting article on "Summer Roosts of Swallows and Red-winged Blackbirds." The roost which attracted my attention was among willows growing on a sand-bar about one hundred yards out in the mouth of Quiver Lake. The

willows were in their second year, and were then submerged for about three feet of their height by the unusually high water. It was a famous place for the communistic blackbirds to congregate after the active duties of the day, and toward sunset they began to resort thither from the surrounding districts. The grackles and red-winged blackbirds were breeding by hundreds in the overflowed regions in the vicinity, and a few had their homes in the willows mentioned. It appeared that this island grove was a regular rendezvous at night-fall. The swaying wands of the willows, all of which had sprung up on the bar in the preceding season, formed a desired roost for these birds, which are naturally gregarious. Thither they came, all noisy and musical as the blackbirds can be, coming singly and in couples, trios, and troops of various small numbers. The cowbirds, having no established homes of their own, appeared to be very abundant, and came in low over the water, adding their sharp, squeaking whistles to the mingling notes of the grackles and the twanging calls of the red-winged blackbirds. Both sexes of the cowbirds joined the hordes gathering for an hour of sociability and a night of rest; but of the other species the males were largely in the majority, the zealous care of the females holding them in brooding watchfulness over their grass-woven homes in the adjacent swamps. The jargon of a large troop of blackbirds is not unmusical in its combined effect, and from the willowy resort the medley was produced by thousands of throats. At times the clamorous young of the birds resident among the willows manifested their desires in loud, harshly-grating notes, not unlike the rapid cackling of the guinea hen. Now and then amid the jingle I could hear the "peabody" song of a departing white-throated sparrow, resting for the night to enjoy the company of its noisy bedfellows. Until an hour after sunset, even after the last belated stragglers had settled into their places, the confused medley saluted the ear. The red-wings were the last to become quiet, though after they ceased as a company the voice of an occasional grackle was heard, perhaps in response to the rapidly-delivered notes of a whip-poor-will sounded from the river

bank beyond; but at length darkness reigned over the scene.

Like their regular associates, the cowbirds manifest their gregarious nature early after the breeding season by forming into flocks, the numbers varying from twenty to fifty or sixty. The old birds have then gone through their summer moult, and the glossy black of the males has been changed into the duller colors worn by the females and the young of the year. At this time of the year the cowbirds may be seen in the great flocks of blackbirds of various species assembling here and there, congregating where food is most abundant and easy to be procured. They leave this locality comparatively early, the flocks beginning to form late in June, though the larger flocks are observed in July and early August. Their movements to the Southern States (where they spend the winter), and their manners while sojourning there, are very similar to those of the other associated species.

Robert Ridgway gives their habitat as temperate North America (except Pacific Coast), north to about the sixty-eighth parallel. They breed chiefly north of the thirty-fifth parallel, and winter mainly south of the same parallel, down to the southern borders of the United States.

It has been generally inferred that the impositions of the cowbird are especially harmful in restricting the numbers of insectivorous and song birds, but it does not necessarily follow that the balance of nature is disturbed by the peculiar habits of this species. Late investigations of the food habits of the cowbird indicate that the species is largely beneficial, for Prof. Beal's report read before the Biological Society, D. C., showed the food of the cowbird to consist of "animal and vegetable matter in the proportion of about twenty-eight per cent. of the former to seventy-two per cent. of the latter. Spiders and harmful insects compose almost exclusively the animal food, while weed seeds, waste grain, and a few miscellaneous articles make up the vegetable food." It is not improbable that the so-called insectivorous birds displaced by the cowbird are thus kept in check by this natural agent, and their mission performed by the usurper in directions as helpful

as the special functions of the sufferers. We may later come to understand that one cowbird is worth two bobolinks after all.

FIELD SPARROW.

No other inhabitant of the bushes is more abundant than the little field sparrow, whose resemblance to the common chipping sparrow causes it frequently to be overlooked, or mistaken for its better known relative. Indeed, its similarity to the chippy has been recognized in its popular titles of "field chippy" and "red-billed chippy," the latter name suggesting one of the chief points of difference between it and its congener, and the former title indicating its preference for rural life. In all respects it is the equal of the regular chipping sparrow. Its song is louder, fuller, and more modulated, its disposition is gentle, its manners are interesting, and its activity in the service of the gardener and farmer is fully as noticeable as that of its more confiding cousin. In its chosen resorts it is fully as common as the chipping sparrow about our dwellings; and if its disposition led it to dwell nearer our homes, it would be an equal favorite. However, its retiring nature leads it to seek seclusion, and it is rarely seen about the lawns and gardens, where the chipping sparrow prefers to dwell. When we visit the field sparrow in its favored haunts, however, we find that its secluded ways are not due to shyness or timidity; for it trills cheerily as though unconcerned about our proximity, and continues in its pretty ways regardless of our presence. Its love of rural life is as marked as the chippy's liking for its urban home, and we think none the less of the little field sparrow for its manifest regard for the peace and quiet of its country home. While we who live in the villages and suburban places are cheered by the rattling trill of the chippy, and can study its confiding manners and observe its domestic life in our gardens, our dooryards, and along our streets, the residents of rural districts can study with the same interest and advantage the behavior and economy of the equally attractive field sparrow.

The untrained student of birds who begins his observa-

tions early in the spring may be somewhat confused by finding several of the sparrows which look and act much alike. The tree sparrow, the field sparrow, and the chipping sparrow are apt to be confused by the novice. The tree sparrow is a winter resident in this region, and can be studied earlier in the year, before the two similar species make their appearance, and thus it can be easily separated from the others by studying it alone. It usually retires toward the north as the others appear among us from their southern winter homes. The chipping sparrow seldom is found nesting and resorting far away from dwellings. The chippy has a black bill and its cap or crown is very dark, almost black, while the field sparrow has a red bill, and its cap is more reddish. By giving attention to these traits and markings, and to others mentioned in the books of descriptive ornithology, we believe that observing boys and girls can soon become acquainted with these similarly-appearing sparrows, and then their ways can be separately studied. We have not here mentioned the song sparrow, which is another small sparrow arriving among us about the time when the others appear, for its markings are so different, with its streaky breast and small black spot forming a "breastpin," that it should not be mistaken for one of the others mentioned. None of the three sparrows first mentioned has the streaks on the under parts, in mature plumage.

The home of the field sparrow is in the eastern United States and southern Canada, ranging westward to the edge of the great plains, and southward to the Gulf States. It is said to breed from the Gulf States northward throughout its range, and spends its winters south of the thirty-eighth parallel. It comes to us from its southern sojourn soon after the middle of March, and from its arrival until late in the fall its plaintive trills are a feature of the scenes amid which it resorts. Colonel Goss and Dr. Brewer both state that the song of the field sparrow is not powerful, but the observations of the writer lead him to agree with Robert Ridgway in the opposite opinion. The latter observer says that in Illinois, Indiana, Maryland, and Virginia, where he has listened to its song on countless occasions, he has always regarded the song of the field

sparrow as being particularly characterized by its power, being certainly far louder and capable of being heard at a much greater distance, than that of the song sparrow or vesper sparrow or any others of the smaller species of this family. The field sparrow's song is further characterized by its plaintiveness, and were it not for this quality would rank among the very finest bird songs which can be heard in our fields. Sometimes a particularly gifted male will repeat twice or three times the usual song without faltering, and then the performance becomes truly fine. (Natural History Survey of Illinois, Vol. I, page 276.)

The favorite resorts of the field sparrows are bushy pastures or margins of woods. One of my pleasant experiences occurred while I was rambling along the edge of a wood-pasture, which had grown up thickly with small dwarf thorn bushes. A sudden shower came up, and I sought shelter from the dash of rain by crouching under a low, wide-spreading haw tree. As the first drops struck my shelter, I observed a number of field sparrows flitting out of the woods ahead of the shower, and hurrying into the scattered bushes. They were females which had been out refreshing themselves after the confinement of incubation, for I mentally marked a number of the bushes, and on investigating them after the shower had passed, I found nests in them, and the females sitting cozily on their treasures. The hasty dash of rain had driven them home to care for their households. Perhaps they remembered that they had left their houses open, and bethought themselves to hurry home to close the windows and doors. Had I not thus observed them seeking their habitations, I should not have been aware of their nesting in such numbers. One of the most populous haunts of the field sparrow that I ever knew was a pasture which had been cleared many years before, and had lately grown over with blackberry, gooseberry, hazel, and other low bushes. There the familiar chant of the field sparrow was heard all day long, even in the warmest portion of the afternoon. There the indigo bunting sang its persistent measures, and the yellow-breasted chat whistled and cackled from its close retreat. There also the cardinal uttered his rich whistle in the early morning, and the

towhee enlivened the afternoon by its monotonous melody. Along the road which bounded two sides of the pasture was a telegraph line, and this wire was a favorite point of view for the field sparrows. Perched on the wire, a happy male would erect his head proudly and utter his plaintive chant, retaining his place for many minutes, if undisturbed, and repeating his varied ditty from time to time, perhaps attempting to please his mate who sat in her lowly home among the bushes.

The nest of the field sparrow is placed low in the bushes, generally less than a foot from the ground. It is in the central portion of the bush, among upright stems. Sometimes the nest is placed on the ground, among upright stems of weeds and grasses, and often in higher situations, in hedges and other higher bushes. Low bushes, less than three feet high, however, are preferred for sites. When the nest is placed on the ground, it is generally built at the foot of a protecting weed or stem, or against a fallen branch. The nest is made externally of dried grass, and usually it is lined with horse hair, but sometimes the lining is merely a layer of finer grass. The fact that both the field and the chipping sparrows use horse hair in the construction of their nests has caused them to be designated "hair bird," a title which is applied to either. The chippy, however, frequently constructs its home entirely of hair, while the field sparrow commonly erects an outer wall of dried grass. The nest of the field sparrow is a trifle larger than the home of the chippy, and the eggs are altogether different. Most boys and girls have seen the delicate bluish-green eggs of the chippy, with their irregular markings of blackish-brown. The eggs of the field sparrow have a greenish-white ground, and they are marked irregularly with various shades of brown. Davie says they average .68 by .52 of an inch. In most instances at least two broods are reared in this locality. I have found nests with fresh eggs in the first half of July. Hereabout, the first nests generally have their complements of eggs in the first week of May.

The field sparrow is one of the chief victims of the cowbird in this region. I have found many nests in which

the parasite had deposited its egg before the rightful owner had taken final possession, and which the outraged sparrows had deserted, not caring to use the home which they had constructed with such hopeful anticipations. Most birds spend a few days in visiting their companions and in dallying about the neighborhood after completing their home, before they begin their regular occupancy of the premises. The skulking cowbird, anxious to find suitable foster parents for its offspring, makes the most of its opportunities to deposit its eggs before the selected parents move into their new domicile. This action of the cowbird leads many birds to forsake the home they have prepared, and the cowbird by its precipitancy thus destroys the chances of safe issue of its offspring. I have frequently removed the egg of the parasite from a nest of the sparrow which contained less than a full complement of eggs of the owner, but the sparrows seldom seemed to regard the act as a favor, and frequently deserted the premises as though the removal of the egg had been an outrage. I have concluded that the cowbird is perhaps as useful as the sparrow, and since the sparrows are abundant, rearing several broods every season, and take apparent delight in brooding the eggs in their nest, it is perhaps as well to leave the eggs as we find them.

The late summer habits of the field sparrows coincide with their deportment in the earlier season, though they resort less to the bushes, and seek quarters more frequently in weedy patches where seeds afford them agreeable sustenance. In the fall they can be found in clumps of ragweeds, and when disturbed they fly out into the hedges with undulating, jerky flight peculiar to the sparrows. When they are migrating, usually in the last weeks of October and in early November, they are found altogether in weedy lots and along hedges, associating with others of their kind. Their songs are rarely heard on the migrations, and they act in all respects as though their spirits were depressed by the change from the bright and pleasant scenes of the vanished summer.

CARDINAL OR REDBIRD.

One of the birds of the bushes certain to attract notice in this section is the splendid cardinal or redbird. If we see him flitting about during the winter, his vermillion red plumage, trimmed with black and surmounted by a showy crest, forms an agreeable contrast to the dreary scenes about him, and the rich whistle he utters fills the frosty air with unaccustomed vibrations. When he invites our attention in the summer, his splendid colors are only seen to better advantage amid their verdant setting, and his rich, mellow notes seem fully in accord with the beauty of the warmer season. Indeed, his beauty of plumage is a challenge to those persons who regard our native birds as lacking in ornate coloration, for nowhere do we find a bird more gayly robed than the brilliant cardinal. Moreover, the sub-family to which the cardinal belongs includes the handsome towhee and the beautiful rose-breasted grosbeak, and the three species are worthy of places beside the bird beauties of the world. They are eminently gifted, and their individual qualities of ornate plumage, sweet voice, and engaging manners are seldom found so happily combined. We are particularly interested in the cardinal because he is one of the few birds whose presence adds cheer to the winter season, being a permanent resident throughout most of Illinois and corresponding latitudes. As an additional claim upon our regard, he does not hesitate to take up his summer quarters in town, establishing his home in the honeysuckle clambering over the trellis almost within reach of the door or window, or elsewhere in the vicinity of our dwelling; and his full, sympathetic notes are frequently a feature of the bird-life of a given neighborhood in the cities.

The most of the summer birds of Illinois tend toward the north in their habitat, but the cardinal belongs more to the avi-fauna of the south. It is a resident of the eastern States, living regularly south of the fortieth or forty-first parallel, but is a casual visitor to the southern and southwestern border of Ontario. In "Birds of Michigan"

it is recorded as breeding occasionally in that State. It is said to be a resident wherever it is found.

The cardinal is ordinarily a bird of the bushes in woodlands, and it is found in greatest abundance in the undisturbed woods of the river bottoms, where dwarf trees and climbing vines furnish it convenient nesting sites. Thickets in open woody pastures, and the cleared margins of woods overgrown with wild gooseberry, blackberry, haw, and plum thickets are its common resorts. It can be observed to advantage, however, when, in company with its more plainly colored mate, it visits the village and suburban gardens and dooryards in winter, the sharp, forcible chirps apprising us of its presence. On any of the fine mornings of early February, when the genial sunshine is warming the frosty air, and the snowy covering of the landscape is glistening with the radiant gleam, the first summer song of the male is heard in the ringing syllables, "What cheer, cheer, cheer, cheer?" And if we are enabled to approach near enough to observe him with head proudly erect, his body elevated, and his bearing stately and dignified, we are ready to admit that spring can have no more worthy or splendid herald. The sweetly plaintive chant of the "peabody bird," which is singing farther along the hedge, serves to enhance the expressive richness of the cardinal's song, and the gentle tinkle of the tree sparrow's silvery voice appears to be an indistinct accompaniment. Little wonder that we mentally see robins squeaking in the tree tops and bluebirds "shifting from post to post," as we easily interpret the full-voiced message of the cheerful cardinal.

On the bright mornings at the close of winter the cardinals are particularly active and joyous in the swampy bottom-lands, and with the recently arrived robins, song sparrows, and other venturesome species they make the desolate regions fairly to ring with their choruses. It is probable that they are mating at this season, for a female is nearly always accompanied by a male, and often by two who are seeking her favor. It seems to be a friendly rivalry, always courteous and dignified, as I have never seen them engaging in the jealous encounters which accompany the courtships of the robins and many other

species. Like typical nobles of olden times, never forgetting their high position and ever respecting the least of the proprieties, the cardinals move and live truly kings among their baser fellows.

Like the robin, Baltimore oriole, and other birds which become familiar in their manners and confiding in the choice of their nesting sites, the cardinals sometimes become attached to particular locations, and occupy the same spot for consecutive seasons. Once a pair established themselves in a honeysuckle which climbed upon a trellis standing about four feet from a parlor window of a house in town. The vine grew within twelve feet of a sidewalk used at all hours of the day, and in the lot across the street was the largest church in the community. In this center of activity the pair lived prosperously and joyously for several years. During the early days of spring and during the honeymoon the birds flitted about over the neighborhood in company, cheerily whistling and singing; for the female of the species is no indifferent songster, her performances being well rendered, and only a degree inferior to the mellow fluting of the male. In the period of nidification, the notes of the male grew more varied and expressive; and when the time of incubation came, and the female patiently brooded over her home, the devoted husband sat on the top of the trellis as his most favored perch, and there eloquently proclaimed his devotion and happiness. Many birds jealously refrain from uttering their notes in the vicinity of their nests, lest they betray the secret of their joy; but the cardinal can strike his sweetest tones in the immediate vicinity of his home.

When I visited the family living in the house, I always managed to take a peep at the home presided over so gracefully by the mother cardinal. The chief feature which first attracted my attention was her enormously large bill, which had a decided tinge of vermilion in its coloring; and I understood why the species is sometimes called the cardinal grosbeak, for the great bill is notably characteristic. Her back was dark olive, while her crest, no less elevated than that of the male, was only-tinged with the showy vermilion which rendered the male so

conspicuous. Her wings and her tail—the latter showing conspicuously over the rim of her bark-woven home—were colored to correspond with her crest. She was a close sitter, and after a few visits she would not slip from the nest unless startled by some awkward or threatening movement of the observer. Then she would flit about the premises and utter that sharp chirp, and her knightly husband would join her with his earnest remonstrances. Soon I would leave the habitation undisturbed, and presently the eloquent whistling of the happy male told me that peace again reigned over the embowered fountain of his joy.

The nests of the cardinal are constructed soon after the middle of April in favorite localities, and somewhat later in other regions. While enjoying an outing in the river bottom near Pearl, Illinois, on May 6th, I found a nest of the cardinal containing three young birds several days old; hence this nest doubtless was founded about the middle of April. The season, however, was exceptionally early, and averaged two weeks earlier than ordinary seasons. May is the month when most of the nests are built and the eggs deposited, and June and July are pretty certain to witness nests and fresh eggs of the species. These data indicate that the breeding season is long and uncertain, and perhaps more than one brood is reared in some instances. The site of the nest is commonly between four and eight feet from the ground, and climbing or tangled vines appear to furnish the most desirable places. I found a nest one spring against a fence-post, set in a clambering grapevine, near a railroad; and all of seven nests of the cardinals that I examined in 1896, with one exception, were placed in the stems of climbing vines. Wild gooseberry bushes and small haw and other trees are regularly selected in which to place their habitations. The cardinal is commonly more shy and retiring at the season of nidification and incubation than at other times, and instances of its nesting in public places are the exceptions.

The nest is usually composed externally of coarse pieces of dried leaves and weed stems, frequently on a foundation of paper, rags, or any materials obtainable, unless in regular wildwood surroundings. Grapevine bark appears

to be an almost indispensable material, and it is used in rounding up the walls and also in the base of the structure. In most cases the nest is lined with a layer of wiry, reddish stems and rootlets. The eggs in a complement number three or four. They are greenish white, marked irregularly with spots of reddish brown. They average 1.00 by .75 of an inch.

When the young cardinals leave the nest and take their first lessons in domestic economy, they resort to the weed patches bordering streams and ravines in wooded regions, where in company with young towhees, sparrows, and other granivorous birds they feed on the seeds of weeds and grasses. The most of the food of the cardinals is found on the ground and among the weeds, and often they can be heard rustling among the leaves in their forest home searching for larval worms, insects, and seeds. They are frequent visitors to the feedyards of rural homes, where they pick up neglected grain, and often forage around the corn-pens in winter to glean the scattered morsels. The wild berries and grapes found in the woods in late summer and through autumn and winter furnish them a bountiful living, and on their leisurely excursions through the gardens, yards, and orchards they fare sumptuously on the berries, seeds, and insects they secure. The seeds of the sunflower attract them to our yards and gardens, and very early in the mornings they can be observed taking their breakfast from the ripened heads with evident pleasure.

The cardinal does not cease to manifest its cheerful spirit after its youngsters have left the parental home, but through the remaining portion of the summer and late into fall its varied and interesting notes enliven the neighborhood it frequents. Its persistency and beauty of expression have caused it to be regarded with favor as a cage bird, together with its surpassing brilliancy of plumage. Indeed, in the early history of our country it was christened the Virginia nightingale because of its vocal powers, singing as it does from early February to early November in favored regions. The author of "Our Birds in Their Haunts" thus speaks of the cardinal: "Nor does it render a mere matin or vesper hymn, but

may fife its loudest, clearest melody at almost any hour of the day. In the breeding season its song is almost as full of enthusiasm and gesticulation as that of the purple finch. His shy ways, in the northern limits of his habitat, as he hops slyly about the thicket in winter, or retires to the deep forest in the breeding season, are strangely in contrast with his familiar ways in the south. There he may dust himself in the highway till you almost trample upon him, may build his nest as near human dwellings as does the thrasher or the mocking-bird, or visit the farm-yard in company with sparrows, jays, and turtle-doves to share the food of the common poultry in winter."

The cardinal is similar to the rose-breasted grosbeak and the towhee in its apparent dislike for long flights. Its powers of wing are strong, but its flight is marked by the somewhat undulating motion of the *Fringillidae*. It does not sustain itself in long passages, flitting from point to point rather than continuing to its destination in one course. Nor does it aspire to mount high in the world, but frequents the lower branches of the trees and the tops of the higher bushes in preference to the treetops. It appears to pass its days with little of the bustle and hurry which mark the lives of some of our birds, always easy and graceful in movement, steady and stately in deportment, a worthy representative of the first families of the "Old Dominion."

INDIGO BUNTING.

How rapidly pass the few summer weeks of bird courtship, love, and song! To-day is the first of August, and the long, heated afternoon has just begun. The trees about my study window, which were animate with the movements of joyous birds earlier in the season, now seem entirely deserted, and droop their leaves as though they also were influenced by the noontide heat. Some of the birds are yet stirring, however, for in a plum tree yonder the sharp "cheep" of the young catbirds, just led from the nest by their dilatory parents, comes to my ear, and the low, liquid "quoot" of the elders is heard, announcing



YOUNG INDIGO BUNTINGS, WITH NEST.

From life. After Shufeldt.

to the younglings that the demanded food is near. Nor have the bird songs all ceased, either; for now the merry carol of a goldfinch floats to my ear as the happy fellow bounds through the air. A robin is bravely singing, too, hidden by the foliage of the high maple in which he is perched, and at regular intervals comes the trill of a chipping sparrow from the top of a smaller maple. Now another familiar voice gives pleasure, singing from a yet lower level; for in the top of a small plum tree an indigo bunting chants as loudly and blithely as in the earlier days. Surely if generous measure can render the music of any bird acceptable, the little indigo bunting deserves a high rank among our songsters. The quality of its fervid roundelays, however, is little inferior to the quantity; and lovers of bird music can not tire of the pretty little strains it delivers so regularly and persistently.

In my early wildwood rambles I soon formed the acquaintance of this little creature, so ornately attired and musically gifted. I could not fail to notice it; for as I sat on the shady bank of my favorite fishing resort, more interested in the birds than in my idle cork, the indigo bunting would perch in the tree-top above me and chant its vigorous measures. As the days grew warmer, and the harmony of the woods became weaker, its strains seemed yet louder, and in July the wildwood chorus dwindled to a trio which never failed to yield me pleasure—the blithe carols of the indigo bunting in the tree-top, the sweet chants of the song sparrow in the top of a brush-heap, and the short, merry whistle of the yellow-throat in the lower bushes. Indeed, it seemed to me that only in July the song of the indigo bird arose in spirit and power, for then its fervor and fluency most claimed my attention.

In the midday July heat it chooses a perch in the summit of a garden tree, or on the telegraph wire near its haunts, and there it delivers its pleasing chants. Unlike the vireos, it is a bird of the sunlight, and only in the direct sunshine does it sing at its best. Nor does it sing as an accompaniment to its work; but, like the song sparrow, with which it often associates, it sings from its love of melody and from an overflowing spirit. Lifting

its head proudly toward the unclouded blue, of which its dress appears to be a fragment, it pours forth its little roundels of joy with freedom and animation. In my younger days, the indigo bird a-top of the apple tree in the garden was a regular feature of the heated summer noontime, and somehow I then formed the notion that it comes among us only in the glare and brilliance of the midsummer; but I afterward learned that it takes the brightest sunshine to develop both its melody and its rich beauty of plumage.

One day I had a good opportunity to observe the splendid colors of a male indigo bird. While I was standing in my garden almost concealed by the rank vegetation which had grown rapidly during my absence, a male of the species dropped upon an oblique spike of the blossom of a convenient cornstalk, and there in the brilliant sunshine he quietly sat and allowed me to observe him at length. The term indigo is weak in expressing the richness and warmth of the deep ultramarine blue displayed by the plumage of the head, neck, shoulders, and upper back; and the darker bluish-green of the lower back and tail was far from the dead hue of indigo. It seemed to me that the tropical sun could develop colors no brighter nor more beautiful than adorn our little indigo bird, and the little fellow appears to know that it needs the strong sunlight to reflect the beauty of his coat. Seen in the shade or at a distance, the dead blue predominates in his color, and then he is called the "blue linnet," while in other lights the green is more prominent, and hence he is designated as the "green linnet" or "green bird."

The summer home of the indigo bunting is eastern United States, extending northward into Canada, and westward to the edge of the great plains, breeding chiefly north of the Gulf States. Its winter home is Cuba, eastern Mexico, and Central America. The first individuals of the species appear among us on the spring migration about the end of the third week of April, lacking some of the old confidence at first appearance, but soon acquiring spirit and animation. They are emphatically birds of the bushes wherever found, preferring the bushy borders of streams with a narrow fringing of woods, or the edges of

woods and clearings. They make themselves perfectly at home in gardens containing low trees and shrubbery, and while they are not so familiar as some of the birds dwelling about village and city gardens, they are natural at all times. In fact, they are never disposed to be hermits or recluses in their habits, and are seldom found in the dense, more primeval woodlands. Bushes along railroads seem to meet their ideas of a desirable neighborhood, for on the ground under the clustering vegetation they can pick up the fallen seeds of weeds or sit in the cool shade when they desire. On the telegraph wire they can sit in the sunshine and chant to their heart's content, while among the foliage of the bushes they can construct their nests, and the female can sit ensconced in her cozy cottage while her husband watches and sings from his perch above her.

Their homes in the bushes along the railroads are likely to come to sudden grief, however. In the nesting time one year, a fragment of the history of an unfortunate family fell under my observation. Walking along the track one morning in late May, I found myself face to face with a mother indigo bird, who was peering at me over the brim of her home in a small elm bush beside the path in which I was walking near the rails. I have seen some pretty bird pictures, but that one held me fascinated for some time as I took in every detail, and impressed on my mind a little bit of nature that I can now recall with interest. The bush was almost open on the side toward which I approached the nest, and the mother bird sat facing me, as though she knew that the rear was well screened by foliage and she must keep a sharp lookout in front. Her little body sank well into the nest, but her head rested with the chin on the rim of the structure, and her bright eyes held a queer expression of curious interest, for I saw she was by no means frightened nor even anxious. I could carefully note the colors of her plumage exposed to view, and even when I moved up closer she sat composed and dignified. I decided that she certainly had young under her, she sat so closely upon her charge. Bending over within three feet of her, I could see that the brown of her back was no more brown than the indigo of

her mate was not indigo, for there was enough blue tinging shoulders and back to make them almost "dove" color, similar to the vinaceous tints of the prairie horned lark, or shading darker than the colors of the dove without the metallic reflections. Stepping yet nearer, I startled her from her nest, and she flitted to the fence near by, hopping around and facing me as she chirped with anxiety. Then I could note the dingy white colors of her breast, which seemed to have a faint tinge of yellow. Her calls of alarm and anxiety brought another form to her side, and to see them apart, who would ever suppose that both birds were of the same species? They were as unlike in colors as the male and female of the scarlet tanager, or the male and female of the orchard and Baltimore orioles. Looking into the nest left exposed by the mother bird, what was my surprise to see only one egg, for I had never witnessed so much faithfulness exhibited in the care of a single fresh egg. Returning that way in the evening, I approached the spot cautiously, this time from the rear; and as I had expected, I found the female sitting upon her solitary treasure. After again enjoying the pretty picture, I startled her from her home, this time to be further surprised by seeing a newly-hatched, naked little nestling! I could now account for the faithfulness of the mother in the morning. But how did it happen that she had been brooding only one egg? Visiting the spot several days later, I found the bush cut close to the ground by the indifferent men who kept the track in order, and I reflected that the faithful care of that little mother bird in brooding one egg had been lost. No, not lost, for the expenditure of the mother's love for her infant can not be in vain, though the babe live only long enough to die in her yearning arms. The maternal love must ever enrich the heart that enshrines it, and so I imagined that the songs of this pair were only more tender and expressive after their sad experience of the summer.

The nests of the indigo bunting are seldom begun before the middle of May in this section. The sites most favored are usually in low bushes, clumps of wild blackberry, hazel, and elm. The indigo bunting does not hesitate to establish its home in the gooseberry, blackberry,

and raspberry bushes of the gardens in town. The most of the nests I have examined were placed among upright stems, held in place by the loose outward pressure of the light materials in the nest. In other cases the nest is placed in an upright crotch, and it is commonly built between two and seven feet from the ground, the higher sites being found in hedges and larger bushes. Most of the nests are between two and five feet from the ground. The indigo bird pays little attention to the construction of an artistic home. Its nest is somewhat bulky for the ideal of so small a builder, and is very similar to the work of the cardinal in miniature, or a smaller edition of the home of the dickcissel. It is made externally of dried weed-stems and pieces of leaves, mingled with which are bits of grayish vegetable down and gossamer. It is lined with fine, bright dried grass. Like the nest of the chat, which it likewise resembles except in its smaller size, it has a foundation largely of coarse pieces of soft, dried leaves. The cavity is about two and three-eighths inches across at the top, and is about one inch and one-fourth deep. The early complement of eggs usually consists of four, but in July I frequently find nests containing only three incubated eggs. They are white, with a faint bluish tinge, generally unspotted, frequently with a few dots of light brown. They average .75 by .55. As the breeding season extends well into July and even early August, it is probable that two broods are reared in this locality in most instances.

Many birds find little time and perhaps have little inclination to exercise their musical abilities after the nesting period begins. The little indigo bird, however, seems to find inspiration in his increasing household cares, and as the prospects of his family grow brighter, his voice rings out in added strength and persistency. When the nestlings appear, he joins hands with the mother bird in bringing them food and in otherwise caring for them; yet still he finds time, succeeding each of his short excursions after food, to stop in his favorite perch and sing a few tuneful strains. At noontime, when the heat deters the fond parents from active labors in behalf of the little

ones, he passes the hour gayly chanting his choicest measures. When the brood has left the nest, and the little ones have been carefully taught the art of bread-winning, the songs become less frequent, and gradually fail; and thenceforth our little friend attracts no attention.

In the earlier days of the season the indigo birds spend considerable time on the ground, under the weeds and bushes, probably feeding on the weed seeds, and searching for the various forms of insect life on which they chiefly feed. The females frequent the bushes more generally than the males, probably knowing that their less splendid dress will seem poor by contrast. At any rate, they are more retiring than the males, and are rarely seen out in the sunshine with them. The males, however, apparently do not think less of the demure little creatures retiring among the weeds and bushes, and they, too, must spend much of their time winning the favor of the little brown beauties in their secluded resorts.

While I have no authoritative data concerning the subject, I infer that a large share of the insect food of these birds is found on or near the ground, and among the foliage of the weeds and bushes. They are members of the great family of finches, and, true to the habits of the majority of the group, the indigo buntings feed largely on the seeds of the weeds among which they resort. They are probably very beneficial, being free from any imputation of harm, and have ever been regarded with favor wherever their showy attire and lively chanting have called attention to their movements. In the later days of the season the males are found among the bushes and weeds, with the females and young of the year, living silent and retired where their food is easily obtained, until the great southward movement of the birds in the latter half of September sweeps them along from the scenes of their summer joys and sorrows, and they hasten to the lands of ever-verdant foliage.



YOUNG YELLOW-BREASTED CHATS, WITH NEST.

From life. After Shufeldt.

YELLOW-BREASTED CHAT.

Surely if there is a sprite among the birds, it is the yellow-breasted chat! For years he tantalized me by whistling at me from his bushy tangle, and then hiding elsewhere in his covert before my eager eyes could obtain even a glimpse of him. He certainly is the "artful dodger" among the feathered kind, and often the inquisitive visitor to his haunts has been led a merry chase by this dancing sprite of the tangle. There are many birds that are retiring and secretive in their favorite resorts, but the yellow-breasted chat is usually noisy and loquacious, and hence apparently easy to discover. When we seek him, however, we find that where he seems to be he is not present. Indeed, he is likely to be heard in quite another place, just when we think we must surely surprise him this time. Penetrating a clump of briars to rout him from his covert, we find that he is already gone, and even beginning his whistle in another place; and following to catch sight of the artful whistler, we hear him in the former stronghold, composedly whistling and cackling and calling. Thus I learned to know the chat, recognizing his peculiar voice and some of his varied calls before I saw his handsome form; but at length I became more successful in my efforts to learn the queer ways and eccentric behavior of this wildwood harlequin, and often saw him at his best.

My first glimpse of the chat was obtained among the tangled weeds and bushes skirting the little stream along which I so frequently rambled. I had reached a small bend of the creek inclosing a little peninsula thickly grown with bushes, from whose weedy coverts I heard the clear calls of the Maryland yellow-throat, the chants of the song sparrow, the loud whistling of the cardinal, and among them a new voice, which sounded to me like the whistle of a schoolboy as a signal to his mates, except in its monotone or lack of inflection. It caught my ear on the instant, and I was soon pressing forward to find the restless whistler, when his call arose farther ahead; and now he followed his whistling by a strange cackling, very

similar to the calls of young grackles in their nests, or the calling of the kingrail, with less intensity. Then he varied his performance by a loud, clumsily executed imitation of the mewing of the house cat, from which the novice might have suspected that the concealed performer was a catbird; but no catbird ever uttered so odd a jargon of abrupt, smothered whistles and choked detonations as issued from the throat of the loquacious songster. Some parts of the quaint productions reminded me of the imitations of the mocking-bird, but they lacked all the sweet, sympathetic qualities and softly varied modulations of that past-master of wildwood song. After some minutes of cautious peering through the intervening shrubbery, and some strategic movements to gain better points of view, I detected the active musician—a bird somewhat smaller than the catbird, though apparently of stouter build—dodging among the foliage of the tangle.

Seen at rest for a few moments, when he takes a station toward the upper branches of a large tree and delivers his quaint medley before dropping headlong into his covert, the chat is a handsome, showy bird, with glossy olive-green upper parts and rich yellow breast, the other under parts showing white. He is certainly thoughtfully named, both as to his yellow breast and his title of chat; for his volubility, though of a sputtering sort, establishes his right to the latter portion of the title. His generic name, *Icteria*, reminds us of the yellow of his breast, and his specific name of *virens* refers to the green tinge of his back; hence, if we can remember his technical name and its meaning, we can always think of his showy colors in the same connection. On the other hand, when we learn to know the bird and can picture his handsome appearance, we may be able to recall his scientific title by thinking of his colors. The partially successful imitations and the varied repertoire of the chat have caused him to be styled the "yellow mocking-bird" in many localities; but, judged by the standard of real melody, he ranks rather low in the list of songsters, in my estimation.

Robert Ridgway gives the home of the yellow-breasted chat as eastern United States; north to the Connecticut Valley and Great Lakes; west to the borders of the

Great Plains. It winters in eastern Mexico and Guatemala. It is said to be rare in the northern portions of our State, and indeed I have not found it really abundant in any of the resorts where I have seen it in this section. It returns to its summer home at about the time of the great northward movement of the vireos, warblers, and other species dependent on the foliage for the major part of their sustenance, arriving here during the latter days of April and in early May.

The males travel in advance of the females, and come in full song, soon announcing their presence by their peculiar, original performances. In an open, bushy pasture between two patches of woodland I frequently found the chats. Among the wild blackberry and hazel bushes they could flit and dodge, and when so inclined they could perch upon the telegraph wire that was stretched along the road between the two pieces of woodland, and there whistle, cackle, mew, and sputter as they pleased. At the sight of approaching persons, they were certain to drop headlong into the thickets. There they made themselves neighbors to the field sparrows, hiding their homes in adjoining bushes, associating also with the indigo buntings, towhees, and cardinals, which made their dwellings in the tangles, though there appeared to be little affinity between the chats and their neighbors. Indeed, I seldom see two chats together, wherever I find them; and I have formed the notion that, as individuals, they are too fond of their own performances to listen quietly to those of their fellows, and hence prefer to skulk and chat apart from others.

The bushes which fringe the banks of the swamp-lakes and which crowd the edges of the bottom woodlands are famous resorts for the chats, and there I found them dwelling and nesting most commonly in this section. Bushy areas and thickets along secluded streams attract them, though they prefer bushes in open areas to undergrowth, liking the sunlight better than the shade, and displaying their greatest animation and powers of voice under the influence of the warmest sunshine. However, I have heard the chats sing in the early hours of the night, perhaps called from restless slumber by the

soft, liquid strains of the catbirds who were serenading their lady-loves; yet the best and most varied performances of the chats are rarely heard in the night. In my experience the chats sing as frequently on dark nights as in the moonlight, though these songs of the night are delivered only in the mating and early breeding season.

The nesting season of the chats begins generally with the last week of May, though in advanced seasons they commence the work of nest-building soon after the middle of May. In 1896 I found nests with well incubated eggs on May 29th, and eggs in nests found on June 3d were about ready to hatch. In ordinary years the nests contain their full complements of eggs about the end of the first week of June. The site of the nest is generally in the most tangled portions of the copse selected, though frequently I find nests in detached low bushes. The densest portion of the hazel copse and clumps of briery bushes mingled with vines are preferred as sites for their habitations. The nests are ordinarily closely screened by surrounding stems and foliage, but they can not be regularly overlooked by experienced observers any more than other nests in the bushes, where so much of the view is obstructed by intersecting stems and overlapping leaves. I frequently find them placed in the base of a clump of "buck-brush," where there is no surrounding vegetation to screen them, and also in low elm bushes in retired localities, no more closely concealed than nests of the cardinal. The most of the nests are between one and three feet from the ground, though sometimes the nest is found as high as six feet from the ground. Davie records an instance to show that a pair built in a wren box attached to one of the pillars of a piazza which partially fronted a small ravine. The chats are not averse to taking up their quarters even in town, if the conditions are favorable. In the middle of June, 1896, I heard daily the characteristic and unmistakable notes of the chats as I passed along College Avenue, in Carlinville, Illinois, and I have no doubt the birds were nesting in the bushy yards and gardens.

The nest is usually placed among upright stems, frequently in a crotch. The foundation of the wildwood

home is dried leaves, mostly whole, and I once counted more than seventy-five whole elm leaves in the base of an ordinary nest. The walls are formed externally of dried weed stems and rounded up internally with stems and bark, besides leaves and other materials interwoven into the sides. The lining is generally fine wiry grass and rootlets. An ordinary nest is about four and a half inches in external diameter, and stands about three and a half inches high in position. The cavity is rather less than three inches across the top and about two inches deep. Some nests are made largely of long pieces of creeping plants, the pieces being wound around the nest several times. A set of eggs contains either three or four, and they are glossy or pinkish white, irregularly and variously spotted or specked with bright reddish brown, sometimes with spots larger and more numerous around the larger end. Davie gives the average size of ten specimens as .92 by .71 of an inch.

The chat is a regular victim of the cowbird, and a nest of the species without eggs of the parasite is an exception hereabouts. The chat does not always accept the imposition quietly, however, and frequently pierces the egg of the intruder with its bill and tosses it out of the nest or else deserts the home it has begun. Generally it accepts the conditions it finds in its home after an unlucky absence, and broods the mixture in its nest as jealously as though solely its own product. The female sits on her eggs closely, while the male whistles among the adjacent bushes and lower branches of the trees. He does not go beyond the limits of his domains to deliver his eccentricities, but, like the cardinal, he sings his best at home. Indeed, some of his most varied performances are inspired by the happiness he experiences in the little home ensconced among the subjacent brambles. Robert Ridgway says: "During the height of the breeding season the male becomes exceedingly animated and tuneful, ascending, by short flights and jumps, from branch to branch, to the top of a small tree, singing vociferously all the while, and then launching into the air, dangling its legs, and flirting its tail, descends, by odd jerks, to the thicket."

The nest of the chat can generally be discovered by

these delirious calls and ludicrous motions of the male, for they are commonly executed in the immediate vicinity of his home. The female can be found on the nest in most cases, for she does not flit from her charge until the intruder is quite near it, when she reveals its location by diving from the nest into the adjacent shrubbery. When thus startled from her home she usually goes some distance, but quickly returns by short flights, hopping through the bushes and keeping concealed most of the time, though venturing into the open spaces often enough to watch the fate of her household. On such occasions I have not heard either male or female utter any kind of scolding note, though it seems natural that a bird with the extensive vocabulary possessed by the chat should have some expression for its alarm and anger.

The later days of the summer residence of the chat are passed in silence among its favorite coverts. It skulks more closely in the bushy thickets than before, and appears to have lost all of its varied musical oddities, rarely rising as in former days above the summits of the copses it frequents. Its food is found in the bushes where it resorts, and it has little need to go beyond its desirable retreats. Like most of the warblers, among which it is grouped, it leaves its summer home early in September, joining the first detachments of the vast army which throngs the tropical regions through the winter.

V.—FRIENDS OF THE HIGHWAY AND DOOR-YARD.

"The sun is bright, the air is clear,
The darting swallows soar and sing,
And from the stately elms I hear
The bluebird prophesying Spring."
— LONGFELLOW.

THERE is evident wisdom in the custom of planting elms, maples, and other trees along the streets of our villages and cities, and of adorning our dooryards with evergreens and other shade and ornamental trees. It has had a happy effect in attracting greater numbers of the birds which choose to dwell in the vicinity of civilization. The avian homes in the tall shade trees along the streets are commonly secure from the depredations of crows, squirrels, owls, snakes, and other enemies, which render the chances of successful issue so few when the nests are situated in forest localities. The proximity of gardens and fruit trees also increases the supply of insect food, and lessens the burden of providing for several hungry mouths. There is additional danger to the fledgelings, however, when they are ready to leave the nest, from the stealthy cats and proverbial small boys.

On the whole, there has been a sensible increase both in the species and the individuals which live in towns and suburban localities. The rows of fine hard maples in many of our cities have attracted the wood thrush, one of the most retiring of the wildwood species. During a sojourn in Carlinville, Illinois, in the month of June, I was daily regaled with the delightful warbling of this gifted songster; and on one occasion I saw a wood thrush sitting on a picket fence along College Avenue, sweetly

tinkling its silver bell, while a woman was hanging out her washing not twenty feet from the apparently indifferent performer. The northeastern quarter of the little city referred to has been transformed into the semblance of a deeply-shaded grove by the trees of the streets and yards, and there the birds are heard and seen in numbers, living and brooding undisturbed. Vireos, rose-breasted grosbeaks, and other species are as noticeable as in their wildwood resorts, and an ornithologist who wishes to study the birds in urban environments will find them there in abundance. It is well known that the crested flycatcher, naturally a resident of the densest woods, is not averse to town life, and is gradually increasing in numbers in the centers of civilization, where the conditions are favorable.

Some of the birds, however, have ever been the companions of man, and whether in town or country, have dwelt in our dooryards when others have at first shunned our presence. There are several species which even indifferent persons know; for the very familiarity of such birds obtrudes them upon our notice, whether or not we care for them. Who can remember the time when he did not know the robin, or the catbird, or the wren, or the bluebird? They seem to have been our intimates from our earliest years, and among them the robin is certainly first in familiarity and prominence.

THE ROBIN.

The robin requires no formal introduction to the vast majority of American boys and girls. Throughout northern and eastern North America his early arrival after the breaking of winter, his musical morning carols and loud evening squeakings, his frequent foraging in garden and lawn, his entire confidence in man, as shown by his nesting almost within arm's reach of the door or window, his royal seizure of every sort of ripening fruit—all serve to bring him before our notice. He is beyond doubt the best known and the most typical American songster.

While many of the singing birds become silent as the cares of home and family increase, the robin is one of the most persistent of songsters, beginning the day with a carol before sunrise and closing with a chant after sunset, from his spring appearance to his late autumn departure. He even cheerily sings for us while boldly collecting his share of the garden fruit, evidently believing that his music is a fair equivalent for his luxurious living, and that his destruction of insect pests earlier in the season made the fruit a reality. The robin is to the summer what the chickadee is to the year round—the ever-present exponent of cheerful melody. On any of our dreariest rainy mornings of late March after robin has come, his tuneful carols more than compensate the bird lover for venturing beyond his cozy study to hear the “good mornings” of his intimates.

As migrants the robins are in the van of that vast army which annually travels northward at the appearance of spring, the bluebirds alone sometimes preceding them. I have recorded their arrival at Virden, Illinois, as early as January 30, 1887, and as late as February 26, 1892, the advancement of the season and the locality causing the great variation in the dates from different sections. The robins that come to us at the close of winter seem to prefer the tops of the tall elms and maples, acting as if they doubted the advisability of remaining. We usually note them first in the morning or evening, when their sharp, impatient, nervous squeaks inform us that the first robins have come. They generally utter several of the loud squeaks, and quickly follow them by two or three similar notes uttered in a lower, somewhat muffled tone, pronounced more under the breath than the introductory squeaks. Lowell has added to our appreciation of the “doubting bluebird’s notes,” but far more expressive of doubt are the actions of one of the first squeaking robins who finds himself separated from his fellows and calls to them from the leafless summit of the tall elm or maple. Those first louder exclamations may seem to indicate his resolution to remain even alone, in the face of the purplish-black snow-bank crouching over the western horizon, but those muttered, faltering expressions of his real feelings

immediately betray his deep alarm at his situation among such uninviting scenes. As the days pass, however, if the bright weather continues, the first arrivals discover more confidence; others come among us with their brisk ways and nervous chirps, and the first visitors seem to be assured that all is right. The opening week of their sojourn seldom passes without our hearing their familiar trills from the door-yard elms and maples. Toward nightfall we may hear their sharp, modulated squeaking, and see them coursing swiftly through the air seeking resting places for the night.

The flight of the robins is strong and business-like. They seem to know where they are going, and follow an air-line in their course to their destination, swerving swiftly to either side to avoid obstructions in the line of their flight. Like all other strong-flying birds, they use the tail to wonderful advantage in guiding their movements and in alighting. A noticeable feature of the tail is the white spot on either side, at the extremity of the outer feather; and when they spread their tails to rise from the ground in flight, these markings are always revealed. If they are to fly only a short distance, they will probably keep the tail spread to assist them in stopping, and the white marks will be seen during their movements.

Soon after the males have settled among us, the females arrive, and later the jealous tilts of the rival robins are frequent occurrences. It is common to see one male jealously pursuing another in and out of the foliage and around the bushes of the lawn or garden. Frequently there are three robins in the group, generally one female and two males, who are ardently seeking her favor, and are correspondingly jealous of the presence of the other. One spring when I was walking along a railroad beside the public park of my native village, two robins swept into view from a neighboring garden, one in fierce and blind pursuit of the other. In attempting to cross the track ahead of me, both struck the end of a tie and both dropped disabled upon the ground, where they lay until I reached the spot and picked them up, when they slowly revived and fluttered heavily away. These jealous conflicts are accompanied by loud squeakings uttered in shrill,

angry tones, and the encounters are no doubt very exciting to the participants.

In his dealings with his neighbors, the robin is not always inclined toward peace, especially when he happens to live near a family of grackles. If a blundering grackle chances to cross the limits of his neighbor's territory, Robin is after him with ready bill and angry squeak, and it is likely that the intruder will retreat without remaining to give battle. Another undesirable visitor to the claimed premises of the robin is the blue jay, and though he may saunter into the vicinity of the nest innocent of trespass, or may be going honestly about his business, he is indignantly ordered to leave the premises, and is usually ejected at once. This manifestation of ill-temper is only the result of the robin's jealous care for his home and family. Most of the birds, which ordinarily seem amiable and winsome, are easily ruffled by the approach of even a harmless neighbor into the vicinity of their homes.

Robins begin to nest even before the stout crotches which hold their adobe dwellings are tinged with the green of the budding garniture. Many a brood of young robins is cradled in most cheerless surroundings. But even when the ill-timed snows of early April flutter upon the head and back of the devoted mother birds, they merely tuck their ruddy feather coverlets more cozily about their treasures and nestle more closely behind the impervious walls of their earthen homes. Have the robins been taught by experience that grassy walls alone form imperfect shelter from the chill winds of early April? Have they learned that their plebeian cottages, perhaps objects of scorn and ridicule to Sir Baltimore and Madam Vireo, are the best sort of dwellings for their March and April establishments? It may be possible that those who are disposed to sneer at the humble mud cots of the otherwise well-to-do robins may have the worst of the argument after all. Be that as it may, the robins are too sensible to be laughed out of the style of architecture sanctioned by their better judgment, and so they are still industriously plastering the walls of their habitations—wise builders that they are.

The first nests are usually made soon after the first of

April. In 1883 I remarked a pair of robins at work founding a home in a large maple in town, as early as March 19th. The two following days brought rain and sleet, and the work was interrupted. On the 22d, which was clear and warm, they resumed operations. By the 26th the nest was finished and the female had commenced laying, having spent the two preceding days in the nest. On March 28th I climbed to the nest, which was set in a crotch in the main trunk about twenty feet from the ground. I found in the nest four eggs. No other robins were building in the neighborhood, nor did nidification begin with others that year thereabout until April 5th. Ordinarily the nest is situated on a horizontal branch where forking boughs furnish a base of support, or it is set in an upright crotch at varying distances from the ground. I have found nests in osage orange hedges below three feet from the ground, needlessly exposed to the visits of snakes and mice. Occasionally I find a nest made upon the end of a rail outside the angle of a worm fence, protected by a rail behind and another rail above the nest.

The foundation of the nest consists of dried grass, with which are often mingled rags, and string either loosely bunched or wound among the parts of the foundation or hanging from some part of the nest. Upon this the mud walls are raised, made about one-fourth of an inch thick, with more or less dried grass upon their exterior surface. The smooth bottom of the nest contains a scant bedding of the same grassy material. Both birds work at the structure. The female, however, carries most of the heavier materials and personally attends to the disposition of all the various fabrics worked into the structure. The male aids by fetching a few lighter bundles and singing his cheery carols. The walls are carefully rounded up by the female, who moulds them smoothly with her breast. If the bird lover is fortunate enough to see her using her faded red apron as a trowel, he can understand why she wears a dress less showy than her mate. Is she not sensible in thus donning her ruddy apron as she plies her plasterer's art? Having disposed of her bill-full of mud upon the wall in the desired place, she drops upon her knees on the floor of her hovel, and moving her breast

from side to side, gently forms the rising walls to fit her shapely body.

The usual number of eggs laid is four. I never found even five in a complement, though some observers report occasional sets of six. The normal coloring of the eggs is a uniform light greenish blue. Davie says that their average size is 1.16 by .80 of an inch.

The robins are among the heralds of the day. They open the daily festival of bird music with a grand concert at dawn. Their earliest notes form a soft musical twitter. This is followed by a loud, joyous choral, whose effect is increased by an accompaniment from the other early vocalists. Before sunrise the robins cease their warbling, and they remain quiet until the sun has appeared above the horizon, when they again pour forth their notes, continuing at intervals throughout the day. Few bird biographers have referred to the varied vocabulary at the command of the robins. They can squeak in all the different keys, seeming to have perfect mastery of all sharps and flats (though they squeak mostly in sharps). They have a measure of shrill chirps which they use as interludes to their commonest songs. The aforesaid chirps are uttered in a ventriloquial manner, so that they seem to issue from a more remote performer. The double-toned squeaking of the robins has been described, and these utterances are almost as common as their characteristic trills.

But the charming feature of robin music is its delightful uncertainty as to its modulation. The robins have no recitatives—

“The same old traditional notes,”

but they utter the passing emotions of their breasts with remarkable power of improvisation. At times they are inclined to be contemplative, and then their tender, softened trills scarcely carry their dreamy expression to the ear of the attentive listener. Again as the performers sit in the inspiration of the warm sunshine, “o’errun with the deluge of summer,” the clear ringing carols are voiceful expressions of the true happiness which springs from content.

Late in the fall the robins leave their summer resorts in the door-yards and gardens, and forming into small

flocks, become shy and retired, inhabiting the woods where they can feed on the wild grapes and berries. Lowell's lines,

"The sobered robin, hunger silent now,
Seeks cedar-berries blue, his autumn cheer,"

contain a rhythmic characterization of the fall mood of our friends of the door-yard, now transformed into taciturn woodsmen. On the bright mornings of September or October they can be seen about sunrise darting swiftly into the trees laden with vines, or flitting away after they have eaten their fill of the clustering grapes. In the dark woods they flit here and there from one's presence as they are disturbed in their repasts. Few trills and warblings are heard at this season, but chiefly the squeakings and calls of alarm, and thus they live until the changing weather advises them to seek more cheerful quarters. When they reappear in the woods at the close of winter or on the first evidences of the approach of spring, however, as they usually do before they appear in the towns and gardens, they are in full song.

The majority of these birds journey in small flocks southward from central Illinois in the first two weeks of October. Observers in many localities, however, note their residence through the winter, or at least until very late in the season. Where there are sheltered neighborhoods, such as bushy swamps with open areas of water, or thick woods supplied with berries, robins will congregate in great numbers to feed on the clustering fruit. They are particularly fond of the bright red berries of the mountain ash of the northeastern forests, and vast flocks of robins delay their migration until the supply of berries is exhausted. Even in Nova Scotia observers report that several robins remain all winter in a given neighborhood. Robins wintering near the seashore make excursions to the coast on sunny days at ebb tide to search for small marine invertebrates for food.

In the southern winter quarters of the robins, they congregate in the swamps and denser forests where supplies of berries and other eatables are to be found. There their voracity seems to be boundless. Frequently individuals become so gorged with berries and so stupefied by

the juices that they are unable to fly and even fall helpless for a time. The berries of the china tree particularly are said to have such an intoxicating effect upon the birds.

The food of the robin, in view of its long stay among us and its abundance in our gardens and orchards, is a most important subject for the consideration of every horticulturist and agriculturist. In early spring the robin is the horticulturist's most valuable ally, feeding on the voracious larval enemies of young vegetation, and thus affording opportunity for the expanding buds to shoot beyond danger of the ravages of destructive insects. Yet, withal, the robin is somewhat fond of insects which in turn prey upon the insect foes of the gardener and farmer. From the beginning of the fruit season, however, it takes ample compensation for the services already rendered, feeding successively on the ripening strawberries, currants, cherries, raspberries, pears, apples, and even peaches and grapes. It is especially destructive in the pear tree. Being unable to carry away the fruit, it takes a mouthful from one pear and then from others, thus spoiling much of the luscious yield of a tree. Its fall diet consists of late fruits and berries, with a larger proportion of insects than in the earlier fruit season. The nestlings of the first brood are fed mostly on insect food while in the nest and afterwards, until the fruits offer a more luxurious diet. Later broods are fed almost exclusively on soft fruits after the first few days of nest life.

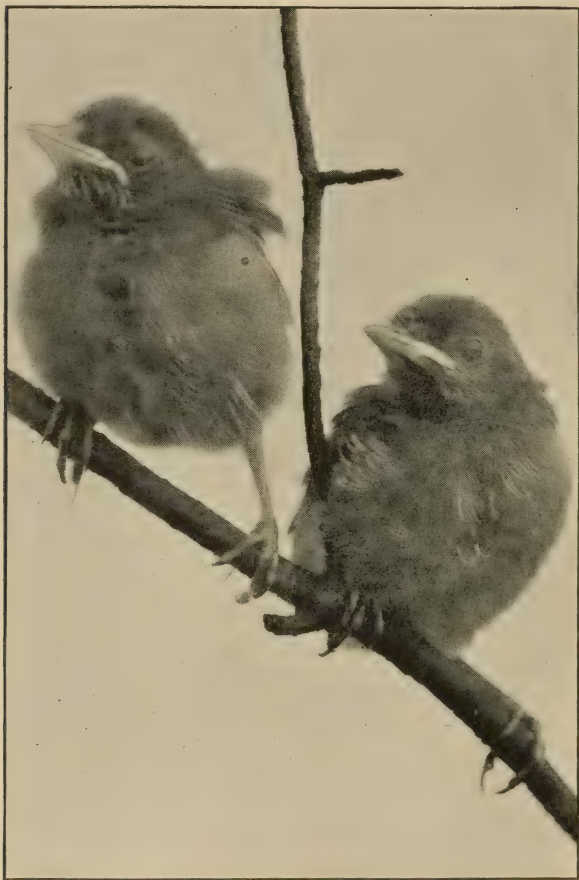
Early one spring it was my fortune to visit the woods on a bright morning before the robins had been seen in numbers in town, and there I found hundreds of robins mingling their voices in continuous chorus. They flitted joyfully about in the gloomy shades, feeding bountifully on the berries which the freezing weather had preserved through the winter. Though a heavy squall of snow transformed the brightness of the morning into the dreariness of a winter afternoon, their cheery trills continued as loudly and as merrily as before. Indeed, the robins seldom have the "blues," for whether the weather be bright or dreary, they sing cheerily a-perch in the elms and maples, sometimes amid beating rain, and even in the driving sleet.

In the late summer the most of the songs begin bravely, but falter after several measures, as though the performers lost spirit before they finished their songs. I have imagined that these late performances were the efforts of the young males learning to sing, for they reminded me of the strains of a novice on the cornet who has not yet acquired a "lip." The defects are strikingly noticeable if the fuller, stronger song of an old male is heard at the same time. However, birds are like human beings in their varying ability to sing, and we should not expect the same finished execution of song from every soloist. These faltering measures, instead of being the attempts of youngsters, may be only the best performances of older unskillful musicians.

I can not conclude this rambling sketch of our door-yard friend without further mention of the nervous, faltering carols of even the best robin musicians. The most persistent of the avian songsters repeat their lays after short intervals, as though they would rest their vocal organs after each ditty. The chipping sparrow, the indigo bunting, the rose-breasted grosbeak, the warbling vireo, and in fact all other virtuosos, are thus enabled to trill hour after hour through the day. The robin, however, seems to have revised the old couplet to read—

"Work when you work, and *sing* when you *sing*,"

for in his nervous execution he begins to repeat trill after trill, scarcely stopping to take breath, until in a short time he falters from lack of further force, even breaking down in the middle of his carol. Resting a few moments, he vigorously resumes his rehearsal, as rapidly and as nervously as before, only to falter in the lavish prodigality of his lung power. His spontaneity of song will not be repressed into the regular cadences of the more artistic performers, but it rather wells up from a gushing reservoir which can not withhold its flow until its level has been reduced, sending forth at first a strong, steady stream, but soon diminishing until it expends itself in feeble drops.



YOUNG CATBIRDS.

From life. After Shufeldt.

CATBIRD.

Though ranking with the bluebird, robin, and house wren in familiarity, the catbird falls far below them in the list of general favorites. However, it has much to recommend it to public favor. Its figure is trim and elegant, its movements are agile and graceful, its song is sweet and modulated, and its manners, though at times familiar and not strictly moral from our point of view, are modest and confident. Yet withal, its noiseless, almost sneaking manner of flight, and its harsh cat-cry, have produced popular prejudice against it, which all of its more amiable traits have failed to overcome. John Burroughs says, "That feline mew of hers, and that flirting, flexible tail, suggest something not entirely bird-like."

Thus the catbird seems to be the victim of a well-established prejudice, not only among men, but also among its feathered companions. Its arrival into a group of songsters of other species silences their music and causes their departure one by one from the spot. It seems to have taken the hint, and usually avoids the snubs of other birds by keeping aloof from them whenever possible without going directly out of its way. When it chooses to feed on the wild grapes and the berries of the Virginia creeper, with which our undisturbed forests are laden, it selects a time when other birds are not feeding on them, or a vine where they are not congregated. Its life is more or less independent of bird society, yet it lives well and appears to pursue its way with quiet indifference to what its neighbors think or say of it.

The habitat of the catbird is eastern North America to the western base of the Rocky Mountains, ranging northwardly to latitude 54°. It is resident in the Southern States. The winter quarters of our Northern catbird are around the Gulf of Mexico and south to the Isthmus of Panama. It is recorded as breeding throughout its range.

As migrants the catbirds are rather late in their arrival in this region, being seldom seen here (39° 20') before April 24th, and averaging even later. Robert Ridgway notes their appearance at Mt. Carmel, Illinois, April 18th

to 24th, the earliest and latest dates for the years 1863-'66, inclusive. After their arrival, their songs can be heard regularly from their chosen resorts, their preference being thickets of dwarf trees and shrubbery. They have no decided liking for the woods, away from human habitations; but with an easy confidence, they are at home in the gardens, orchards, and door-yard bushes, as well as among the wild woodland bushes and swamps. I knew a pair to fix their home in the top of a large spreading lilac bush overhanging the sidewalk of a busy thoroughfare, there constructing their habitation and caring for it and their brood almost within reach of many who passed it daily from early morning till late at night.

Like the robin, the catbird does not reserve its music for occasions only when other songsters are filling the morning air with melody. In warm summer afternoons, when perchance you are sitting on the shady bank of some lazy stream, listening to the tireless cadenzas of a song sparrow among the dry branches of a fallen tree, a dark-gray form may flit out from the adjacent shrubbery and alight among the branches of the tree containing the melodious sparrow. The first performer ceases his ditty, and presently flies with undulating movement farther down the stream. The newcomer, after several harsh calls, begins a sweetly modulated medley, executing with quiet ease occasional brilliant strains, now raising his voice in a series of ringing notes and imitations, and then uttering notes scarcely audible, yet sweet and touching. This gentle, subdued singing or talking is quite characteristic of the catbird as well as some other songsters. When the rose-breasted grosbeak is observed in the execution of its loudly mellow song, it will frequently lower its voice and continue its melody in a strain as soft and sweet as the last faint lullabies of the mother to her babe just quieted in sleep. The warbling vireo has the same habit, as well as the brown thrasher in the later portion of the nesting season. The catbird, however, often falls into this retrospective, sympathetic mood early in the season. In the summer, long after many of the other birds have become noticeably silent, the soft melody of the catbird will come to your ears, if you have approached quite

near his quarters undetected; and you will stop to listen with wondering ears as you peer among the tangled bushes to catch a glimpse of the virtuoso, who is apparently practicing for a public effort in the future. You will not be caused to wait and look long, however, before the performer himself will glide into view.

The sweet notes of this accomplished musician are heard not only throughout the day, but frequently the overflowing melody of some individual will cause it to sing late in the night. During the first week of May, 1896, while camping near the Illinois River, my restless ears at midnight caught the rich strains of a catbird rising from a point across the river, forming the leading part in a melody furnished by the whip-poor-will, yellow-breasted chat, wood pewee, and other love-lorn troubadours.

A striking element in the song of the catbird is its uncertain continuity. On a lazy summer morning or afternoon, while you are swinging in your hammock in some shady nook, the dreamy lyrics of a catbird in an adjacent lilac will arise, and you congratulate yourself that you are about to be entertained by a recital of choice melody. To your disappointment, the music ceases abruptly after several introductory notes. The musician was only "tuning up," perhaps you imagine, for soon he begins again. This time he may get well along and have gained your rapt attention, when again, in the very midst of a delicious measure, the melodious flow suddenly ends, and the characteristic cat-cry erases much of the pleasant impression made by the unfinished song.

In many localities the catbird is known as the "gray mocking-bird." It does frequently attempt to imitate the notes and cries of certain animals, yet it is an indifferent mimic, the harsh imitations it produces usually being only inharmonious contrasts to its own choicer melody. Robert Ridgway says of the catbird: "He at times gets tired of his own voice, and substitutes other sounds which he has heard. These he imitates with tolerable success; but the sounds which he most affects, as the squeal of a young pig, the squeaking of a hinge, or the squall of a cat, are harsh interpolations of a song which might otherwise be pleasing."

For nesting places the catbird is partial to wild gooseberry and blackberry bushes, either isolated or in thickets. A thorny bush growing in a hedgerow is a most tempting site for its home. Dwarf trees and low climbing, clustering vines furnish well-hidden retreats; and orchard trees, with hedges usually surrounding such places, contain many tempting nooks for rearing feathered families. The nest is commonly set in a crotch, or where contiguous twigs afford a firm support. It is placed from two to eight feet from the ground. The structure is formed of dried hedge or other thorny twigs, stems of weeds and grasses, dried leaves, and strips of bark and husks, with a lining of dried rootlets. The eggs number four or five, four being the ordinary complement. They are unspotted bluish-green or greenish-blue, and average .95 by .70 of an inch. Probably two broods are reared in many instances each summer in this region.

After carefully examining the animal and vegetable elements of the food of the catbird in detail, Prof. Forbes summarizes the value of the species as follows: "Remembering that the chief economical service of the robin is done before and after the midsummer wealth of fruits tempts it from the chase of insects, we find it not unreasonable that the catbird, coming later and departing earlier, scarcely anticipating the garden fruits in its arrival, and disappearing when the vineyards and orchards are at their best, should be a much less useful bird than its companion. The credit I have given it must be still further reduced because of its serious depredations in the apple orchard. I have often seen it busily scooping out the fairest side of the ripest early apples, unsurpassed in skill and industry at this employment by the red-headed woodpecker or the blue jay." (Bull. No. 3, Ill. State Lab. Nat. Hist., Nov. 1880.)

Some observers report that the catbird has a relish for the eggs of other birds, and that while it does not systematically harry the nests of its neighbors, it often steals into the homes of owners temporarily absent and devours the eggs. John Burroughs states that he has seen the catbird in the act of devouring the eggs of the least flycatcher. Upon this matter I have no personal knowledge. However, I have often watched the catbird closely when

I knew it to be in the immediate vicinity of the nest of another species—in fact, when it was in the same bush tenanted by a weaker neighbor—but I have never been able to detect it in any cannibalistic operations. Locality may cause it to vary its habits in this matter, as it frequently causes the habits of birds to vary in other particulars. I am willing to rest the case upon the evidence of so accurate an observer as Mr. Burroughs. The bird has a suspicious manner at best, and its conduct upon favorable occasions should be carefully watched.

As the catbird is tardy in appearing among us in the spring migration, so it is hasty in taking its departure in the fall, it being seen here rarely after the second week in October. In 1893 it was last noted here on October 12th. During the last month of its sojourn it skulks with silent wariness and evident laziness closely among the shrubbery in the vicinity of its food, which consists at this season largely of wild grapes, "pokeberries," and berries of the Virginia creeper. In the late season it is active only in the early and late hours of the day. In fact, most birds can be observed toward the close of the season only at their feeding grounds and in the early morning. Two hours of observation immediately after dawn are more productive to the student of bird-life in the fall than all the other hours of the day.

On the first day of August a pair of catbirds led their brood from a nest in the shrubbery in my garden. My attention was called to the family by the hungry, impatient chirps of the younglings, and the low, gentle "quoot" of the parents. They made their regular headquarters in two adjacent plum trees, and I admired the evident wisdom of the elders in thus choosing quarters so advantageous. The trees were flanked on one side by an arbor heavily laden with grapes, and on another by a patch of elderberry bushes, whose long, slender branches were drooping with the weight of the black-red clusters. In another direction was a garden somewhat neglected, from which the birds could draw the supplies they desired; while the remaining side was inclosed by a tight fence, against which both parents and offspring could sit and preen their feathers after their bath in the margin of

the reservoir across the street. The stringer of the fence was a famous place for the youngsters to sun themselves. Regardless of the fact that I was an interested observer of their movements, they would crouch upon the joist in negligent fluffiness, or run along the joist for several feet, and then turn to retrace their path, or perhaps stop to clean their plumage. In their evident pleasure in basking in the sunshine and their indolent life, consisting thus solely of eating, bathing, and sunning, with social converse with their companions, I came to believe that the catbird is a modern type of the voluptuous Athenian of the Golden Age. All through August and early September the family remained in this chosen nursery, the youngsters being reared in elegant ease, and passing their time lounging on the fence, or sitting in the thick shade of the foliage. There comes into my mind the hazy recollection of having read from one of the English essayists (was it the quaint Charles Lamb?) that if he were blessed with a son, he would wish to rear him with the understanding that he had nothing to do except leisurely to acquire all the culture that circumstances might bring to him. I am impelled to remark that the catbirds evidently have the same Grecian idea of rearing their offspring. The product is the versatile, well bred loungers of our dooryard bushes, perfectly indifferent concerning their reception into avian society, at home wherever circumstances invite them—easy, elegant, Epicurean—Greeks among Barbarians.

BALTIMORE ORIOLE.

Among the well-known and splendid species which combine to give the family *Icteridæ* a proud position in our avian fauna, none surpasses the Baltimore oriole in brilliancy of plumage, richness of song, or vivacity of manners. Belonging to a company of eminent vocalists, the Baltimore oriole unquestionably is the leader in expression and power. In a group of famous architects and builders, he is by far the most intelligent architect and the most skillful builder. Classed in a family noted for

bold colors and showy plumage, he alone deserves the epithets of "golden robin" and "firebird." The colonists of the middle and southern seaboard early were attracted by his glowing colors, mellow notes, and ingenious architecture; and they followed the christening of the bird by Linnæus in calling it the Baltimore Bird, from the similarity of its orange and black suit to the livery of Lord Baltimore, the patron of the Maryland colony. Steadily growing in favor, the Baltimore oriole soon became renowned for beauty, melody, and animation, making its way into our literature with the bobolink and other gifted species. Unlike some other birds equally gifted with ornate plumage and mellow voice, it dwelt among the trees which shaded the dooryards of the settlers of the New World; and its rich plaint and vivacious manners soon made it a welcome resident in the little area about the colonist's habitation.

The Baltimore oriole has an extensive range; being found in all United States and British Provinces westward to the Rocky Mountains, breeding throughout. It winters in Cuba, Mexico, Central America, and adjacent regions. No other bird is more regular in its appearance on the spring migration. Robert Ridgway notes its arrival at Mt. Carmel, Illinois, in the years 1863-66 inclusive, on April 19-22. In central Illinois ($39^{\circ} 20'$) it appeared in 1881 on April 24th; in 1882, on April 22nd; and in 1883, on April 28th.

From the first day of its arrival its clear mellow notes float down almost incessantly from the elms and maples shading our dooryards. It usually arrives in the night and announces its presence at early dawn on the following morning in sweet, ringing tones, as it unconcernedly examines the tender leaves of the outer twigs for lurking insects and larvæ, its rich orange and glowing jet flashing in vivid contrast to the bright green of the young foliage; it is indeed the "winged flame of Spring." The male usually arrives alone, and he must wait a time for the appearance of his spouse, who has lingered a few hours on the journey, and who will join him at the old nest when he has made due announcement of his advent in the neighborhood. From the top of the old cottonwood in the

corner of the farm-house yard, from the elms and willows fringing the banks of rivers and creeks, as well as from the stately rows of trees along the town and city highways, the cheery Baltimore bird proclaims his happiness in no doubtful tones. However, though his music springs from a gay and joyous heart, its chief quality is its well-expressed plaintiveness, or rather its clear appeal to the pensive side of our nature; and ever from the oriole flows that stream of plaintive melody, eloquent to the sympathetic soul of the observant student of nature.

Following the males within a day, or sometimes a week, the females join them as though by due appointment. Their courtships are not conducted with the ardor of their relatives, the bobolinks and meadow larks. If they are birds of last year's brood, they perhaps had a tacit understanding before their northward journey, and it only remains after their arrival to seal the compact and make a selection of a suitable nesting site. If they are older birds, they are perhaps mated for life, and return to the last year's nest as a matter of course, beginning immediately to consider the advisability of remaining another year at the old stand. Several weeks are spent in dalliance among the buds and blossoms, and in discussing with their neighbors the prospects of the pea crop and the pear harvest. Then nidification begins and life drifts into the monotony of a well-regulated household.

Like other familiar birds, the Baltimore orioles discover a strong attachment for the places chosen as their homes in preceding seasons. A pair has been known to nest repeatedly in the same tree, returning regularly to the same spot each succeeding year, and either using the old nest after thoroughly renovating it, or else building a new home near the site of the former structure. The elms and maples along the highways in towns and cities furnish them safe building sites, removed from squirrels and snakes, and generally from owls, and usually beyond the reach of the investigations of the small boy. Willows along rivers and creeks, and woodlands generally near human habitations are tenanted by the orioles. Often they place their nests under direct observation from an upper window or

door, frequently within easy reach of the vigilant house cat.

The architectural skill of the Baltimore oriole has done much to bring the species into prominence. After it has acquired an experience of several seasons, its deft workmanship is the wonder and admiration of every student of bird-ways who has examined the strong and handsome pouch it constructs, largely from vegetable materials. No North American bird surpasses it in the quality of its work, or in the tact and ingenuity it displays in suspending its home and in preserving it from impending ruin on certain occasions. The fragile, cup-shaped structures of many of the smaller species may be handsomer and more elaborate, but are not more indicative of skill and genius. The nest is generally suspended from the smaller twigs at the extremity of a long, drooping branch, often so near the tip of the branch that the weight of the materials is too great for the yielding twigs. A site frequently chosen is the forking twigs of the topmost bough of a maple, directly above the main axis of the tree.

There is a great variety in the materials selected and also in the size of the structure, as a series of nests of the same pair of birds will show. The first nest may be no more than four inches deep, while older birds frequently weave pouches more than a foot in length. Vegetable fibers, strings, rags, hair, wool, and feathers are often wrought into the same nest, and constitute the ordinary materials. Nests of experienced builders are often constructed throughout of soft, well-chosen weed fibers, frequently of milkweed and hemp, deftly and artistically woven into a symmetrical pouch of uniform color. Lowell's verse is perfect in its details:

"Then from the honeysuckle gray
The oriole with experienced quest,
Twitches the fibrous bark away,
The cordage of his hammock nest,
Cheering his labor with a note
Rich as the orange of his throat."

The real nest is a lining of soft material in the bottom of the hanging tenement. The eggs are pale grayish blue, irregularly marked, scratched, and figured with

shades of brown, with lighter shell markings. Four to six eggs form a complement, and they average .92 by .62 of an inch.

The female oriole is commendable for the determination with which she remains in her nest in time of danger, her pertinacity often involving her in the ruin of her home. The only nest of the oriole I ever took was about twenty feet from the ground, hanging from the extremity of a branch in a large maple. I climbed the tree soon after sunrise, and around the branch supporting the nest I tied a stout rope as far as I could reach out from the axis of the tree, fastening the rope to a branch above. I then sawed through the lower branch, which dropped as far as the rope gave it freedom. The nest swung within a few feet of the ground, where my father was waiting to secure the nest for me. On placing his hand into the nest he found the female still sitting, and she allowed herself to be removed from the cavity with no demonstrations of alarm or concern, having remained upon her two eggs during the confusion in the tree and the subsequent fall of her home.

The birds which arrive comparatively late from their Southern winter quarters depart correspondingly early, after they have reared their broods in our localities. The Baltimore orioles are especially early in turning their steps toward their winter homes in the tropics. I believe that second broods are rare exceptions in this latitude. Most young birds have left the nest by the last of June, though, of course, by reason of various disasters, many families are found whose nidification and incubation are delayed. Resident orioles forsake our highways and door-yards early in July, their absence being easily noticed by the silence which reigns in their accustomed haunts, for till the time of their departure their melody never fails to be heard daily and hourly. About the first of August the trees are again melodious with the welcome notes of migrants from higher latitudes, which, having reached their destination later in the spring, were proportionately later in concluding the nesting season, and are also later in passing our latitude on their return. By the fifteenth of August this second wave of migration has

passed us, and these brilliant and vivacious songsters have gone from us for another year, leaving our minds filled with regret that such partings must follow the annual revolution of the seasons.

The economical relations of the Baltimore oriole in its food-habits have not been determined as fully as desired. Numerous observers attest that it feeds with relish on destructive caterpillars, pecking fearlessly into their webs when it seeks them. In his "Birds of Michigan," Prof. A. J. Cook states that he has seen this oriole eat the young bark lice from linden trees in the spring, and has seen it driven away by the bees and wasps that came for the honey-dew. It frequently exhibits a fondness for the delicate portions of the pea blossom. In this connection, Rev. J. H. Langille, in his "Our Birds in Their Haunts," thus writes of an incident of his observation: "The Baltimore is a great devourer of insects; but, like other birds of that kind of diet, he will occasionally affect a change. Once, after a spring shower, when the peach-trees were in bloom, a beautiful male lit in one just against a window. All unconscious of my presence, though I was scarcely more than two feet from him, he began moving up and down the limbs in that gliding, athletic manner peculiar to himself, ever and anon inserting his bill into the cup-like calyx of the blossoms. Could he be drinking the newly-fallen rain-drops? Scarcely; for he did not raise his head to swallow. Looking a little more closely, I saw that he was eating the stamens. Let not the fruit-grower be alarmed, however, for nature has provided many more blossoms than is necessary for a good crop. It may be that the Baltimore is simply thinning them to advantage." It is highly probable, from the evidence at hand, that while the oriole may seem to cause occasional slight loss to the gardener, its admitted services in the destruction of insect pests far overbalance any apparent injury it may do, rendering it worthy of ample protection and immunity.

There is a wonderful variation in the notes of different individuals of this species, and also in the notes of the same individual. To the observant ornithologist with nice discrimination of hearing, the notes of any individual frequently heard are sufficient to distinguish it from

others wandering in the same neighborhood, even as the voice is a clue to the identity of a human being. I became acquainted with the notes of an eloquent male Baltimore oriole which tenanted a certain neighborhood one spring. I heard him first as I awoke one rainy morning about sunrise, when he was loudly expressing his enjoyment in the rain so badly needed. To my drowsy ears he clearly articulated the four syllables, "O sweet, sweet rain," repeating the notes as he traveled leisurely along the row of maples in front of the house, probably seeking a breakfast and singing as he worked, the usual practice of the oriole. Soon his growing satisfaction must needs express itself in six syllables, and now to me he sang, "O sweet, O sweet, sweet rain," always employing well-measured iambic feet in his poetic effusions, though sometimes he uttered but one note, a clear, flute-like call. So he sang morning after morning through the season, and though others sang in the neighborhood at different times, there was an individuality in his notes by which I immediately identified him. In the evenings, soon after sunset, he would travel along the row of trees uttering a harsh cackle, probably the galbuline language he used when he wished to discuss private affairs with his spouse. Or could it be the curtain lecture of the dame to her high-spirited lord? This cackling sort of call or note is familiar to all who have been interested in the vocalism of this attractive friend of the highway and dooryard, and is heard in the evening during the nesting time. It is especially noticeable when the young birds are taking their first lessons in flying and in the ways and means of obtaining a successful living.

ROSE-BREADED GROSBEAK.

Among the woodland birds which have gradually adapted themselves to urban life, and are now regular residents of the highways and garden trees, as well as of the maples and elms skirting water-courses, the rose-breasted grosbeak is especially worthy the friendship of all classes. This noble and interesting songster, though quite common in the larger shade trees along our streets

during the migrating and early nesting season, appears to be almost unknown except to the close observer of bird-life. No other Illinois bird possesses more attractive characteristics than does the rose-breasted grosbeak, for he is endowed with charming song, splendid plumage, and most engaging manners. He is one of the most showily attired birds which haunt the highways, having his upper parts deep black, his breast a deep carmine, and the remaining lower parts pure white. The female, however, dresses more plainly, wearing a gown of yellowish brown, streaked with darker colors above, and her head is streaked with white. The under parts of her dress are dingy white, streaked with brown on the sides and breast. With his beauty of attire, the male is gifted with a voice of surpassing richness, which rings from the tops of the elm trees above the sidewalks, but which is so seldom noticed by the indifferent passers-by. His loud, clear song can be heard at any time of the day after the elm buds burst into leaf and the perfume of the first apple blossoms float in the air, until the early days of July.

Unlike most other birds, he is seldom seen long on the wing, as he prefers to spend his time among the foliage of a favorite tree. Few birds are so leisurely in their movements as the grosbeak. An individual will linger for many minutes on the same branch and for hours in a tree, if it is undisturbed, feeding on the seeds of the elm and pulling insects from their lurking places in the unfolding buds and in the bark. I have known a grosbeak to spend several hours in a large elm tree, uttering his beautiful chansons at intervals, and frequently hopping from one branch to another, to pick insects from leaves and buds which attracted its fancy. Like the prairie horned lark, the rose-breasted grosbeak generally utters its song with its head lowered in the act of picking at its food, though at times it sings merely for the sake of singing.

The species has an extensive range, being found in all temperate North America east of the Missouri River. It nests as far south as $39^{\circ} 20'$ in special localities, and according to Robert Ridgway, "north to Labrador and the

Saskatchewan; winters in Cuba, eastern Mexico, Central America, and northern South America, as far as Ecuador."

In the latitude of $39^{\circ} 20'$, the rose-breasted grosbeak appears on its northward migration in the last week of April, having arrived on the 25th in 1891, and on the 28th in 1892. It reaches eastern localities in the first week of May. Robert Ridgway says that the species is transient in the southern portion of Illinois, passing rather hurriedly through in spring and fall; but in the northern portions (perhaps more than the northern half), it is a summer resident.

My knowledge of this species began on May 10, 1882, when I saw several specimens in a small elm in the edge of a wood. Since then I have seen and heard them both in town and in the woods every season through the entire summer. For the first week after their arrival the rich melody of one or two individuals will make musical a particular neighborhood. They do not range aimlessly over a given area, but a pair or several birds will choose quarters in a certain row or grove of trees, and will seldom go abroad during their stay in the locality. When one perceives itself to be watched while it is alternately singing and gleaning morsels from the buds, it gently varies its sweet, full notes to a softer, even more melodious warblè, continuing its occupation, for it will not readily take flight to escape observation. Its song is a very loud, modulated, intensified counterpart of the song of the warbling vireo, richer, clearer, longer, and in every way superior. In richness and fulness of tone it is rivalled by the Baltimore oriole, but the fewer notes of the latter render its song inferior to the ringing lyrics of the rose-breasted grosbeak. Though the song of the grosbeak seems comparatively long, it occupies only from four to six seconds, and the bird readily executes from seven to eight songs per minute.

The grosbeak is especially voluble after sunrise, beginning about an hour after, and continuing for about two hours, during which time it industriously gathers supplies for the morning refreshment of its spouse or family. Averaging seven songs a minute, it thus utters four hundred and twenty songs per hour, or eight hundred and

forty in the two hours designated, exclusive of its productions at other times through the day. Its progress along a row of trees can be followed by its music, and it aptly chooses a time when other songsters are nearly silent, as the early matins of the robin, song sparrow, brown thrasher, and other musicians are then discontinued while they are attending to the wants of their families. Both sexes have a note resembling the syllable "chick," uttered in a tone suggesting the creak of a key in a rusty lock. The male commonly introduces his song with this note uttered in a lower tone, and on changing his position he usually uses this call when he takes a new perch. In fact, it is the regular call of the species, and it is used by the female at all times, and by the young birds when they begin to forage for themselves.

The favorite nesting places of the rose-breasted grosbeak are thorny trees and bushes, orchards, dwarf forest trees, and tall shrubs. Dr. Hoy, of Racine, Wisconsin, reports its nesting in thorn-trees, from six to ten feet from the ground, in the central portion of the top. In our locality the nest is placed on the horizontal branches of elms and in crotches of oblique limbs of garden fruit trees, as well as in elms and willows overhanging the streamsides. It is a slight structure, resembling the work of the mourning dove or the cuckoos, formed of dried twigs, with which is mingled a scant supply of dried grass and weed fibers. Davie says: "The eggs are three to five in number, the latter being uncommon. They are greenish-blue or bluish-green, more or less spotted over the entire surface with blotches of reddish-brown; the eggs resemble very closely those of the Summer Redbird or Scarlet Tanager; sizes range from .95 to 1.08 inches in length by .70 to .76 in breadth."

Dr. Cones states that the eggs are laid in June. Many individuals probably nest earlier; however, some Illinois observers report that the rose-breasted grosbeaks have nests with full complements in the last week of May. I have frequently seen birds lately from the nest, before the first of June. It is probable that two broods are reared in some instances.

In 1893, while rambling in quest of bird-lore, I saw

young grosbeaks in the woods on June 23d. On August 7th I again saw young grosbeaks in the woods associating with young towhees and cardinals, though the latter flew away while the grosbeaks remained in a bare tree, and very coolly allowed me to make satisfactory observations. Soon after sunrise on the morning of August 9th I observed a young grosbeak feeding on the seeds of the sunflowers growing in my garden. It frequently uttered a plaintive "quee" in a low tone. When I approached quite near, it flew into a maple tree just within the yard, accompanied by an adult male I had not noticed. Again, on August 12th, I noted an adult male rose-breasted grosbeak feeding a young bird in a low elm in front of my home, and in the afternoon of the same day I saw a young bird of the species in a neighbor's door-yard. From these facts I conclude that two broods are frequently reared in this extreme southern limit of their breeding range. The young birds can be noted by the sharp "chick" they utter at frequent intervals, and also by their peculiar low, whining, plaintive cry, often repeated many times at frequent intervals, represented by the syllables "tu-rer," the first accented and lengthened. The care of the young birds appears to devolve largely upon the male parent, and indeed a large share of the incubating is done by the good-natured father-bird. Dr. Hoy tells us that he found that three of four parent birds sitting on the nests were males.

Passing under a low plum tree near the sidewalk in town on the morning of Memorial Day, 1896, I heard the plaintive whining of a young bird, and soon discovered the author of the cry on a branch above my head. It seemed a bunch of fluffy, yellowish-white down, with dark markings, and I immediately identified the little helpless fellow as a young rose-breasted grosbeak. The baby was evidently waiting for one of its parents to bring its breakfast, and it frequently made known its wants by repeating its plaintive cry. Soon another young bird was found in an adjoining tree, and as I watched them the father-bird came along uttering his "kick," which he soon changed to a sharp chirp of alarm when he found his babies the center of observation. Low in the branches

of an adjacent plum tree he hopped and swung, anxiously chirping his pleadings for the little ones, who were evidently taking their first outing, and really should have been back in their nest for a few days longer. The loud songs of the grosbeak which I had previously heard in the neighborhood had intimated to me that a pair of grosbeaks had certainly established a home in the vicinity, and these immaturely fledged youngsters were proof positive of the fact. Late in the fall, when the withered leaves dropped from the plum-tree and left its outlines bare, there was exposed a nest made solely of dried twigs placed in a convenient crotch, about twelve feet from the sidewalk. I had passed beneath it several times every day during its construction and subsequent occupancy, but had been neglectful of this golden opportunity to study a bit of bird life almost at my open door.

Attractive as this bird is, both in its colors and in its song, it has escaped the notice of many who know something of our common birds. This is perhaps due to the fact that it is nowhere abundant, and furthermore that its notes to the untrained listener resemble the utterances of the oriole, and hence the latter receives credit for much of the grosbeak's music. However, the notes of the grosbeak are more numerous and its song is more modulated than the oriole's. The oriole usually swings among the outer twigs of long branches, while the grosbeak is inclined to sit among the branches nearer their middle points. Moreover, there is no similarity between these two gifted species in color, except the black, the orange red of the oriole being unmistakable, while the white under parts and carmine breast of the grosbeak serve readily to identify it. If the grosbeak is under close observation, its thick bill is a further guide toward identification, for it is intimately related to the cardinal, and has the strong, thickened bill which is characteristic of the finch family. The body of the grosbeak is larger than that of the oriole, being plump and well-rounded, while the oriole is slimmer and less robust.

The rose-breasted grosbeak has other qualities to recommend it besides its rich plumage and beautiful song. In many parts of the Mississippi Valley it is known as the

"potato-bug bird," since it is one of the few birds known to feed on that scourge of the gardener. I have myself startled it in the act of feeding on the potato beetles upon the vines, when it would fly into a convenient tree and wipe its heavy bill carefully on the branch on which it was seated. The food of the grosbeak consists almost exclusively of noxious insects, and its services in this way are incalculable. In the Report of the Secretary of Agriculture for 1889, page 369, occurs this note: "With the Grosbeak the habit of eating potato-bugs proves to be fairly constant, but unfortunately the bird does not seem to be very abundant anywhere, and hence the resulting benefits have not been generally noticed. Some of our correspondents have suggested that the scarcity of this bird and perhaps of others may be due to the habit of eating insects in places where Paris green has been used, but after careful inquiry we find no warrant for believing such to be the case. We have not been able to learn of a single instance in which any undomesticated bird has been found dead in the vicinity of potato fields under circumstances pointing to this cause. Birds certainly exercise much judgment in selecting their food, and it is not probable that they would eat sickly or dying insects so long as healthy ones were to be found." Very few birds prey upon the pest of the potato grower, and when one is found to aid the gardener in his work, it should be jealously protected in its nesting and in its general habits.

Very early in July the expressive melody of the rose-breasted grosbeak ceases to float down to our ears. On the fifth of July, 1896, I was delighted with the eloquent notes of a loquacious male which made frequent journeys along a row of maples in front of the house where I was staying. For two or three hours in the morning and for about the same time toward evening he was especially voluble. The season of song usually ends when the young leave the nest, and thereafter only the sharp "kick" apprises the listener of the proximity of his feathered friend, whose movements otherwise attract little attention, and who is generally overlooked during the latter part of the season.

The rose-breasted grosbeaks which sing to any degree



YOUNG YELLOW WARBLER, WITH NEST.

From life. After Shufeldt.

late in June or early in July are doubtless rearing second broods. Like the orioles and some other species noticeable in the early half of the season, they are strangely silent and retired through the most of July and August. Indeed, their songs are never heard after the nesting season, and on their fall migration they pass our latitude silently and hurriedly, scarcely deigning to alight amid the scenes of their joys and trials in the early summer. We see the last of them commonly in the third week of September, and to the genial southern quarters toward which they hasten, they carry our warmest regard and admiration; for they are indeed worthy of far more attention and study than have hitherto been given to these highly gifted friends of the highway.

YELLOW WARBLER.

Another familiar friend of the highway and door-yard is the little yellow warbler, or summer yellowbird. Beyond doubt this sprightly dot is the best known of our warblers. Its wide distribution, its animated deportment, its pretty song, its familiar manners, and its gentle confidence, all tend to widen its circle of friendship. Its golden colors flashing in the sunlight in its passage among the ornamental and shade trees of lawns, parks, and streets, arrest the attention of the observing passer-by; and most people are acquainted with the "wild canary," though they know but few other birds. Its morning and evening warble delights hosts of residents of more populous districts, who see only the birds which come to them, for this pleasing warbler finds a home in the maples and elms along the city streets and in the fruit trees of gardens and in suburban orchards, as well as in woodlands and rural neighborhoods.

In extent of habitat the yellow warbler stands at the head of our North American avi-fauna. Robert Ridgway says that no other North American bird has so extensive a range, or so general a distribution as the summer yellowbird, which appears equally at home in the sub-tropical lands along the Gulf Coast and the shores of the Arctic

Ocean; while it is no less numerous in the parched valleys of California and Arizona than in the humid districts of the Atlantic water-shed. It breeds from the Gulf northward throughout its range, and winters southward from our southern border to northern South America, avoiding the West Indies.

On its movement to its summer home it enters the United States on or after March 1st, and arrives in central Illinois about the middle of April. The unfolding buds of the soft maples and the expanding blossoms of the fruit trees in our gardens mark the time of its appearance. During the remaining days of April it revels amid the resplendent glories of the new wealth of unfolding life, trilling its rattling love-lays and selecting the site for its summer home. As it gleams among the buds for insects and larvæ, its yellow plumage blends with the delicate tints of the blossoms in orchards and gardens, rendering it rather difficult to observe in its dark green setting of foliage. It is seen to best advantage when it flashes through the air like a wind-driven leaf of gold, and after it has alighted on a convenient perch it can be examined in detail.

Once a little yellow warbler darted swiftly into a small plum bush within ten feet of the spot where I was sitting, and I could plainly note the bright yellow of its under parts, with streaks of chestnut scarcely perceptible, and the greenish olive of its back. The yellow of its attire is not nearly so bright and striking as that of the goldfinch, with which the yellow warbler is so frequently confounded. The color of the goldfinch is a bright lemon, quite different from the true olive yellow of the real warbler. The male goldfinch in his summer garb can always be identified by his jet cap and wings. There is a probability of mistaking the yellow warbler for the female goldfinch and the female Maryland yellow-throat, any of these common species being popularly known as "yellowbird" and "wild canary." However, the stocky and robust form of the Maryland yellow-throat, and the recollection that the yellow of its under parts is brightest on the throat, will serve to identify it to boys and girls with bright eyes and ready memories. The female goldfinch has the same

dark or black wings and tail as the male of the species, and her under parts are much the color of the upper parts of the male yellow warbler.

Before the pink and white petals of the apple blossoms have faded and fallen, the yellow warbler has begun the pleasant task of constructing its cozy habitation. The shade trees along the highways furnish it nesting places in the upright twigs of large branches, and most of the nests of the species are thus placed. Fruit trees in gardens and orchards, and bushes, shrubbery, and woodlands, furnish attractive sites for its home. In river bottoms it is fond of nesting in the willows so abundant in swampy regions, and the catkins of these trees largely predominate in the materials used in the structure when it nests in such localities. The species is locally known as the willow warbler and willow wren, because it is so often found nesting in those trees. The younger elms in towns and cities furnish it more favorable sites than elsewhere. A favorite nesting site in this locality is found in untrimmed hedges of two or three years' growth, the nest being generally placed in an upright fork on an obliquely ascending branch near the top. The young trees of new orchards are favored situations, the numerous twigs aiding to support the dainty structures.

Once I found a nest placed on a horizontal branch of a small elm along the sidewalk in the little city where I then lived, the site being on one of the lowest limbs which projected over the walk, thus locating the nest within six feet of the heads of the passers-by. It is probable that the pair had constructed this nest unobserved, for the tree was on a corner where small boys in the neighborhood congregated regularly, and it formed a sort of trysting place from its location. When I observed the nest for the first time, I was standing under the tree, and the female was sitting jauntily and fearlessly in her snug home, regardless of our movements and conversation. Her confidence was ruthlessly betrayed, however, for when I passed the spot some days later the nest was gone. It had probably been made the prize of some keen-eyed small boy, for few of them can resist the desire to carry

home a dainty nest with a complement of eggs, as I remember from my own experience.

The nest is made of soft plant fibers, pliant bark, and fine grasses, neatly woven and compacted into a snug cup, and cozily lined with small soft feathers and vegetable down. The eggs are greenish-gray, spotted with reddish-brown, the spots sometimes congregating in a ring about the larger end. Four or five eggs are found in a complement, and they average .68 by .48 of an inch.

In its economical relations the yellow warbler is very beneficial, since its food consists almost exclusively of insects harmful to vegetation. In an orchard infested with canker-worms, five specimens of this warbler were secured by Prof. S. A. Forbes, who reported that two-thirds of their food were canker-worms, and the remaining portions were noxious insects and spiders. It is undoubtedly the interest of the horticulturist to encourage the presence of the yellow warbler, and to protect it from the molestations of the usurping English sparrow by driving the latter from his trees and buildings.

The yellow warbler is subject to regular impositions of the cowbird, nests being rarely found that do not contain one or more eggs of the parasite. The warbler does not always incubate these eggs, however, for experience has doubtless taught it the results of receiving the stranger into its embryonic family. Frequently it builds a floor over the egg of the intruder, though it may often inclose eggs of its own by thus adding a new story to its dwelling. If the cowbird succeeds in placing its egg in the second story, the warbler will sometimes add a third room upon the second, for authentic observers have reported nests containing two and even three incomplete sets of eggs below the set which the warbler was incubating. However, instances of such building to cover the eggs of the parasite are not the rule.



YOUNG CHIPPING SPARROWS.

From life. After Shufeldt.

CHIPPING SPARROW.

Any account of our familiar friends of the highway and door-yard would be incomplete without mention of the familiar and well-known chipping sparrow. Who does not admire its pretty, modest ways? Its thoughtful confidence in visiting our doorsteps to glean a breakfast of crumbs, as well as its frequent residence in the door-yard bush or the hedge surrounding the garden, where its snug habitation is the delight of the children who respect its winning trust, combine to render the little chippy a universal favorite. Many of the birds that visit our door-yards are also residents of other localities, and only some individuals of the species dwell among us, while the others prefer to live elsewhere; but the chipping sparrow finds its chief pleasure in the vicinity of dwellings and near the society of man. It has nothing of the spirit of the recluse, and we need not look for the chippy to be living far away from the homes of man; for if we do not find it inhabiting the hedges surrounding the house and out-buildings, we will not find it elsewhere about the premises. Before the advent and establishment of the vicious house sparrow, the engaging little chippy was a common resident anywhere about our towns and cities in the parks, highway trees, and gardens, and it is yet as familiar where it has not been altogether displaced. It is a common sight to see several of the truculent English sparrows set upon one of the harmless chipping sparrows which is industriously seeking its fare or the horsehairs it desires for the construction of its nest, and brutally drive it from the roadside, or else wound it severely and perhaps kill it. In the larger towns and cities, where the English sparrows are so firmly established, the presence of the chippy has become the exception, and rural homes have become the most favored resorts of the species.

The chipping sparrow lives in the eastern portions of temperate North America, extending its habitat westward to the Rocky Mountains. In winter it passes as far south as eastern Mexico, passing the season between that region and the southern limits of the middle States. It is said

to breed chiefly in the middle and northern States. Like its closely allied relative, the field sparrow, the chippy comes to us at the opening of spring, soon after the middle of March. It takes up the chant which the retiring junco so persistently utters in the latter days of March and in early April, and their rattling trills are so nearly alike that it will require discriminating ears of wideawake boys and girls to avoid confusing their songs. The junco, or snowbird, however, sings with more force and spirit, and sometimes with more variation. The snowbird begins to sing some days before the sparrow appears, hence observant students of the birds can first become acquainted with the trill of the junco, and when the chippy begins his shrill rattle it can be readily separated from the music of the snowbird, which will sometimes continue to sing until the middle of April. The snowbird, or slate-colored junco, as the books call it, and the chipping sparrow sing from similar situations, usually selecting a perch near the summit of an obliquely ascending branch of a small tree, sometimes in a large one, remaining contentedly for many minutes, if they are not disturbed. The sparrow throws its tiny head upward, and its little throat can be seen to flutter with the frequent utterances of its sharp, monotonous trill, consisting of the syllable "chip," repeated rapidly for about four seconds, more rapidly than I can count with it. From the repetition of the note in its song our little friend has received its name of chipping sparrow.

These familiar birds can be seen hopping along the roadside, usually in pairs, probably searching for the hairy materials they use in building their tiny habitations. Their attachment is remarkable, and during the mating and nesting season many charming little love-scenes can be witnessed by the bird-gazer. They frequently resort to the hedges near towns along railroads, and the telegraph or telephone wires offer them convenient places for sitting and singing. Both birds of the pair often perch near each other, and it is no unusual thing for them to sidle nearer and occasionally rub noses in a loving manner, "billing" without "the cooing." The male is a wonderfully polite little fellow, and he would not think of eating any tid-bit he secures without first passing it to

his fair charmer, while she perhaps coyly refuses the first proffers of her admirer. Waiting a short time, the male again offers her the tempting morsel, often placing it almost against her bill, and thus the scene is re-enacted until the female accepts his offering, or he swallows it himself. The yard about the kitchen door is a favorite place for them to visit, as they are pretty certain to glean a substantial meal from the shaken table-cloth. There they must learn to elude the stealthy approaches of the watchful cat, and she usually finds, after a few unsuccessful attempts to capture them, that they are wiser than their tiny heads would indicate, and thenceforth she suffers them to take their supplies from the door-yard without further molestation.

The favorite nesting places of the chipping sparrow are low bushes in the gardens and yards, and hedges which have been trimmed very closely, and which surround the dwellings they regularly visit. The nest is placed among upright stems of the bushes, commonly above the middle point. When in a hedge, it is usually placed in a strong crotch near the top, the stout limbs nearly concealing the nest. The nests in hedges are generally made before the leaves fully unfold, and hence the structures can be discovered by keen eyes. After the hedges are in full leaf it is difficult to find the nests. Many nests are placed in currant and gooseberry bushes. The trees of the highways and door-yards contain a fair portion of nests, usually in crotches of obliquely ascending branches, sites that are similar to those chosen by the yellow warbler. A pair of chippies frequently show their attachment to their previous home by returning the next season to the same vicinity and erecting a new home near the same site.

Sometimes the nest is made wholly of horsehairs and cowhairs, and it must require much careful and patient searching in the roads and barn-yards to procure the necessary amount of material. It is eminently proper that this sparrow should be sometimes called the "hair-bird," for this material appears almost indispensable in the fabrication of its home, as the cast-off snake skin is a necessary component of the home of the crested flycatcher.

Sometimes the outer wall of the nest is made of common dried grass, and the hair is used merely for lining. Three or four eggs form the usual complement, sometimes five, and they are bluish-green, thinly spotted with purplish and blackish-brown, often more numerous at the larger end. They average .70 by .50 of an inch. As nests with fresh eggs are found in May and in June, it is probable that two broods are reared in most instances.

It seems to me that the trills of the chippies are heard more frequently in July than at any other time. This, however, may be due to the fact that then many of the songsters of the earlier season have become silent, and the vocalism of the chipping sparrows is more apparent from the lack of competing voices. They utter about seven songs a minute, making about four hundred and twenty per hour. They sing persistently at all times of the day, and frequently repeat their trills in the darkness of night when restless or disturbed. If their total practice through the day amounts to five hours, it is probable that they utter more than two thousand songs in a day, and perhaps even more; a wonderful record for these little musicians. Their efforts to enliven the warm afternoons of July are as manifest as those of the indigo bunting, the song sparrow, or the Maryland yellow-throat. Frequently they sing from the ground, and it is said that their first announcements of the approach of dawn are uttered while sitting on the earth. Even before the first twitter of the robin is heard at dawn, the trills of the chipping sparrows tell of the coming day, surely a feeble introduction to the grand chorus of early bird voices.

Soon after sunset of one evening in August, I was accidentally made the interested observer of the movements of a young chipping sparrow who was preparing to go to bed. He darted into a small plum tree within ten feet of me, settled on a slender branch in plain view, and then began to preen his feathers, taking an occasional food morsel from adjacent twigs. He was very leisurely and deliberate in dressing his plumage, giving much attention to the tiny feathers under his wings. In dressing his under wing-coverts, he frequently spread his dainty wings until I could accurately distinguish the primaries.

Having cleaned his wings to his satisfaction, he would indifferently look for insects within reach, occasionally extending his neck and head to glean from bark or foliage. He had evidently had his supper, however, and would soon turn his bill to another portion of his plumage, perhaps spreading his tail, in which I could note the little notch, until it was expanded in partial fan-shape, as he adjusted the soft feathers at the base of the stiff quills. Thus he spent many minutes in the gathering dusk, several times settling himself as if he were making his bed, though I knew that his parents and brothers and sisters slept among the branches of a large elm growing beside the doorstep of my house. When I had concluded that he was surely preparing to sleep on the branch from which he had not stirred, there came a sharp chirp from the father bird, calling his loitering son to join the family group in the large elm. For a moment the independent little fellow yet lingered, but at another anxious call he answered in like manner and darted away like a dutiful son to his usual resting place.

While the young are acquiring strength of wing and gaining confidence in their growing powers, they and their elders spend several weeks in the neighborhood of their home, the parents patiently teaching their offspring to forage and care for themselves, and the children carefully attending to the advice and illustrations of the parents. Indeed, the devoted parents do not forsake the tender creatures they have reared so lovingly, and the children remain within hearing and reach of their elders until the family takes its departure in the fall to the southern home. After the young cease to depend on the old birds, elders and youngsters both make their home in the weed patches in company with the field sparrows and other species, and fare sumptuously on the seeds of the rag-weed and similar plants and grasses. Thus they feed in small families or companies until the last week of October, when they disappear for the season.

WARBLING VIREO.

Persons whose ears are not indifferent to the sounds which greet them in their passage under tall maples and spreading elms of the highways, have often heard with pleasure the charming notes of the warbling vireo, though perhaps they have not all learned to identify the modest little songster. The vireos are somewhat difficult to discover in their leafy haunts, for the colors of their upper parts closely resemble the deep green of the foliage amid which they sit or hop in their quest for lurking insects. Having dark olive green on the upper parts of their plumage, they are styled "greenlets," and the lightly shaded white of their under parts renders them so nearly like the mingled foliage and shadow that the untrained observer seldom spends much time in trying to distinguish them. If it were not for the noticeable, sympathetic warble of this vireo, the emphatic, monitory notes of the red-eyed species, and the delicate baskets which they swing from twigs and which attract notice when the leaves fall and cease to hide them from view, these two common representatives of the group might pass unnoticed except by the most observing students of bird-life. The sweetly sympathetic lays of the warbling vireo are very acceptable accompaniments to the louder, similar lyrics of the rose-breasted grosbeak and the richer, joyful measures of the Baltimore oriole; and the gentle little author of the melodious expressions of contentment and satisfaction should not rank among the least known of the species which visit us and dwell among us.

The different species of vireos, like the various members of the flycatcher group, are frequently confused by the general observer, and hence they are not so well known as their charming manners and pleasing characteristics merit. The five species of vireos which find a summer home throughout Illinois in favorable localities, however, have such well-defined resorts and such marked individual traits that the acute bird-gazer can readily learn to separate them and then form their acquaintance as distinctive members of the vireo family. One of the five,

the yellow-throated vireo, is rarely seen in this region away from the tangled woods and thickets of the river bottoms, and hence the resident of upland districts need not mistake any of its congeners for this regular woodland species. Two others of the group, the white-eyed and Bell's vireos, inhabit the thickets and tangles of upland localities, hanging their nests in the forks of drooping twigs among low bushes and shrubbery, and confining their movements to the immediate vicinity of their resorts. They rarely appear above the tops of their lowly haunts, so they need not be confounded with the subject of this sketch and the remaining species. The red-eyed and the warbling vireos, however, are likely to be confused; yet their calls and notes of alarm and their noticeable songs are so different that the discriminating student can identify with accuracy each of them by giving ordinary attention to the characteristics mentioned in the descriptions of the two species. As a further aid in discriminating between the two species, the red-eyed vireo comes to us several days earlier than the warbling vireo, giving us a little time to obtain at least an introduction to it before the latter announces its presence.

The warbling vireo is found throughout North America in general, from the Gulf of Mexico to the so-called Fur Countries, though the representatives of the species which live in western regions are said to have plainer colors and are hence classed as a separate race by some authorities. It breeds throughout its extensive habitat, and probably winters in the Gulf regions. The first individuals of the species come among us in the fourth week of April, not many days after the red-eyed vireo has delivered his first exhortations, and add their touching carols to the rapidly increasing chorals of nature. They commonly appear in the same week with two other noted friends of the highway, the rose-breasted grosbeak and the Baltimore oriole, and thenceforth the maples and elms are melodious with the notes of the three of our most gifted songsters. Unlike the two species named, however, the warbling vireos do not tire of their efforts to cheer us with their music so early in the season. Their notes are heard almost daily along the streets of village, town, and city, from the

appearance of the leaves in the spring to the time they show the gorgeous effects of the first frosts. However, for a time in the heated season in July their songs are heard rarely, or occasionally at most; but after the silence of the moulting period they warble as frequently as in the earlier days, though their notes are now more touching in their somewhat reduced volume and intensity.

The song of the warbling vireo is longer than that of the red-eyed species, and is more refined and expressive. It is most like the song of the rose-breasted grosbeak, yet it lacks the loud fullness of the beautiful strains characteristic of that gifted songster. If the song of the latter were reduced in force, it would be really difficult to distinguish the author by the music, so similar are the songs in quality, though at times the rose-breasted grosbeak extends his measures beyond the length of the longest strains of the vireo. When you hear a series of loud, emphatic, monitorial notes, uttered in groups of three, four, or five syllables, each group with a rising inflection toward the end, coming from the branches about the middle of the height of the tree in which the performer is seated, you may conclude that a red-eyed vireo is attracting your attention. When you hear a series of eight to twelve notes uttered continuously, with less force, but wonderfully expressive and touching, issuing from about the same height as the former, and you recognize the author as very similar in appearance to the red-eyed species whose notes and characteristics you have lately fixed in mind, you may begin your study of the warbling vireo with confidence and success.

When the warbling vireo perceives itself to be the subject of over-zealous observation while it is singing, it has a pretty habit of lowering its voice to continue its song, executing it in a softened, subdued manner, thus rendering the performance scarcely audible to the listener, and all the while it proceeds with its occupation of picking insects from the foliage near it, singing with head lowered and apparently interested in nothing else but its examination of the leaves and buds. I have mentioned this habit as also characteristic of the prairie horned lark and the rose-breasted grosbeak. The red-eyed vireo also sings some-

times in the same indifferent manner. Most birds sing for the sole sake of the music they are producing, selecting a perch, and with upright head pouring forth the joy bubbling up from the soul. The warbling vireo, however, sings about its regular duties as the artless boy or girl sings while engaged in some pleasing employment, as an accompaniment to its ordinary occupations. It carries this trait so far that it sings frequently while it is sitting on its nest, little regarding as drudgery the cares of rearing a family, which many of the birds appear to find so burdensome.

In an article on "Birds Who Sing on the Wing," in the *Oologist* for March, 1895, Dr. Morris Gibbs thus speaks of this species: "The warbling vireo, rarely, in a transport of bliss, during the mating season, launches into the air while yet singing, and apparently forgetful of custom, strives to make us, mundane creatures, as happy as its happy self."

The warbling vireos are regular residents of the large shade trees along our village and city streets, and of the parks and groves of city and country, where their sweet and varied songs indicate their presence. I have found them especially abundant in the heavy groves of maple, elm, and other trees which adorn the banks of the rivers, growing on the ridge immediately between the rivers and the adjacent swamp-lakes. There the songs of these vireos almost continuously remind the visitor of their abundance, and the slender, drooping twigs afford them desirable sites for nesting. They are also found regularly in the orchards, and no collection of fruit trees of any size lacks its pair of warbling vireos. When there are maples growing in the door-yard, either in town or country, the soft warbling of these vireos delights the family. From the door or window the children may watch the movements of these little greenlets, and frequently observe them construct their hanging tenements and jealously care for their growing family. Large maple trees appear to offer them the most congenial surroundings, and where the woodlands do not furnish such trees, they are seldom found in abundance. They are quite at home in the shady parks, for they are rarely seen out in the unobstructed sunshine.

They prefer to spend their time chiefly in the shaded parts of the foliage of the tree, seldom in the lower portion, and not often in the highest parts, except on the migrations and in the later days of their summer residence.

The movements of this gentle songster do not often attract attention, except when it is nesting within view, and it thus obtrudes itself upon our notice. In the tall maples it is never exposed to observation, for though it is seldom at rest for any time, its movements are leisurely and composed, and its graceful, dignified deportment is certain to win favorable opinion. Thomas McIlwraith thus writes of it on this point: "It has little excitement in its nature, and keeps its usual composure under circumstances which would drive most other birds off in alarm. I once saw one warbling forth its pleasing ditty in a shaded tree, quite close to which a large fire was in progress. Firemen, engines, and crowds of people were all around, but the bird was to windward of the blaze, and seemed to be commenting on the unnecessary excitement which prevailed."

The warbling vireo begins to nest in this locality about the middle of May, and its tasty little habitation is usually furnished with its complement of eggs in the last week of the month. Nests with fresh eggs are also found through the most of June. The site is in one of the trees frequented by the birds, at a height varying from seven to forty feet from the ground, even higher in exceptional instances. Most nests are situated between ten and thirty feet from the ground, and the structure is ordinarily below the upper third of the foliage part of the tree. The invariable location is a horizontal fork in the twigs near the extremity of a branch, the fork being commonly formed by the main branch and a diverging twig, and in this site the nest is suspended by the brim. The pretty, cozy affair is made of grayish-white fibers covering strips of dried weed-bark, and lined with fine grass and a few horsehairs. The cavity is a trifle less than two inches in diameter and an inch and one-half deep. Various other material in small bits is frequently woven into the nest, such as fragments of dried leaves and pieces of gossamer in flakes, and shreds from old cocoons. The eggs number three or four, and they have a pure white ground, being specked

irregularly with dark reddish-brown, sometimes more thickly at the larger end with heavier spots. They are about .75 of an inch in length by .55 in width.

Like the other vireos, the warbling vireos do not wander far from their established homes, and the nest of a pair can generally be located by the regularity of their singing in the nesting season. The tree containing the nest can usually be determined by their incessant warbling in and near it, and sometimes the nest itself can be found by tracing the music to its source, for the fact that these birds frequently sing on the nest has been mentioned. I found my first nest of the warbling vireo in an orchard, tracing the songs of the pair to the tree and then to the nest, in which the female was sitting lightly, conversing musically with her spouse, who was seated near her and warbling in response. Even when I stood within a few feet of her she continued her soft melody, and left the nest only when I made a threatening demonstration.

These vireos, as well as others of the family, are exceedingly watchful of the homes they have swung among the twigs, and they scold volubly at the approach of friends or foes, uttering a harsh note of anger, resembling the syllable "gay." This call of anger and alarm is a key to the identification of the species, and will aid to distinguish it from the red-eyed vireo, for the latter has a scolding note, uttered in similar tone and manner, but sounding more like "gway," suggesting to the imaginative observer the words "go 'way," pronounced in one sharp syllable. These chiding, angry notes of the vireos are heard almost constantly in the nesting time in the vicinity of their nests, whether the intruder be a skulking blue jay intent on mischief, a strolling neighbor who happens to alight near the guarded portals of their home, or a rambling ornithologist desirous of knowing something of the habits and manners of his feathered friends. In fact, the scolding notes are uttered by the birds when there is no apparent occasion for their jealousy, being heard more frequently as incubation and the consequent growth of the family advances. After the eggs are hatched, the harsh scolding of the birds takes the place of their warbling almost entirely. They are fearless in defending their

young from threatened harm, and marauders are pretty certain to meet with a warm reception from the diminutive but valiant owners of the premises. Indeed, the best opportunity of the observer to learn something of their appearance is when they lose all thought of self in the defense of their eggs and family.

The utility of the warbling vireo has never been questioned, since its industrious care of the branches and foliage in its resorts is so manifest that we can only admire the little gleaner so patiently and persistently seeking out the hidden foes of the vegetation. It begins its praiseworthy work about the time of the unfolding of the elm buds and the blossoms of the orchard trees, and thenceforth continues its beneficial services until the changing colors of the foliage suggest that its summer's occupation is over. Its chief duty is to rid the tender buds and the bark of the branches of destructive larvæ, leaving the enemies of the surface of the leaves to the care of the warblers and flycatchers. Quietly and unostentatiously it goes about its self-appointed task, humming its varied melodies as it composedly hops here and there, wisely examining the spots most likely to contain the lurking insects and noxious larvæ, or the concealed eggs destined to develop into dangerous and voracious enemies of the health and life of the trees. Its life of continuously mingled labor and earnest song should appeal to every lover of the birds as one of practical duty and beauty, marred by no unworthy action.

VI.—RAMBLES THROUGH THE WOODLANDS.

"The softly-warbled song
Comes from the pleasant woods, and colored wings
Glance quick in the bright sun, that moves along
The forest openings."

—LONGFELLOW.

THE charm of the woodland in the foliage season is well-nigh perennial in its effect upon our nature, and is somewhat akin to the virtues of the fabled fountain for which the deluded Spanish leader sought. In our childhood we eagerly anticipated the pleasures of the day set apart for a ramble in the woods, and as we grew older we arranged to take our outing regularly, spending one day or more of the season under the magical influence of nature. There we rested in the shade of the trees on grassy slopes, or culled the flowers seemingly more fragrant and beautiful than those in our gardens at home. There we heard the voices of many wildwood songsters whose names we never learned, but whose notes appear familiar whenever we hear them. Many of the birds of the woods we knew at our homes on the prairies and in the towns. The blue jay, whose harsh cries and striking colors call attention to him wherever he goes, and whose visits to the evergreen trees in our lawns and door-yards reveal his familiar disposition, was one of the well-known friends we met in the woods. There he was in his element, garrulous and noisy, flying here and there in company with several of his fellows, all making the woods resound with their calls. The diminutive downy woodpecker, swinging from tree to tree, uttering his loud "plick," or driving his sharp bill into the hard bark in

search of a dinner, is also a visitor to our yards, especially in the winter, and he gleans many a meal from the orchard and door-yard trees. The splendidly attired red-headed woodpecker, the showiest of the woodland birds, is a typical representative of the residents of the orchard, for it is equally at home in either place. The rose-breasted grosbeak, one of our friends of the highway and door-yard, is primarily a native of the woodlands, and there along the shaded streams his sweetest songs can be heard. In the woods along the bushy borders of the stream-sides also sing the song sparrow, the indigo bunting, the Maryland yellow-throat, the catbird, the redbird, the Baltimore oriole, and the towhee. There the warbling vireo repeats his sweet, plaintive monologue throughout the day, and the red-eyed vireo continually addresses his hearers in his most emphatic tones. The guttural croaking of the cuckoos indicates their abundance, and the harsh calls of the grackle inform us that this ubiquitous species is especially at home. There the limpid, flute-like notes of the wood thrush announce its presence in the shady glens, and the querulous calls of the crested flycatcher in the treetops regularly attract the ear of the visitor. The yellow-breasted chat whistles from the bushes, and the mourning dove flutters from its simple mat of dried twigs as we pass near its vicinity. None of the foregoing species are confined to the woods, but some of them move and sing with greatest animation in woodland resorts, and while we can form acquaintance with them in town and about our rural residences, we can know them best by rambling through their original environments and observing their behavior uninfluenced by changed surroundings.

WOOD THRUSH.

My acquaintance with the wood thrush began many years ago, in a portion of a "woods pasture" thickly grown with hazel, wild gooseberry and blackberry bushes, small thorn trees, wild plum, and other dwarf trees, all forming a thicket so dense that one could force his way through it only with difficulty. Through the midst of



YOUNG WOOD THRUSHES IN NEST.

From life. After Shufeldt.

this wood flowed a creek whose waters became quite shallow before the close of the summer, and whose banks were overhung by long, horizontal branches of sturdy hard maples, soft maples, and elms. In this wild retreat, through the mating and nesting season, the clear ringing notes of the wood thrushes arose from dawn till dusk, the birds flitting here and there in the gloomy shade, and living the ideal life of true woodsmen. In the low thorn trees and on the drooping boughs of the hard maples they made their homes and reared their broods, unmolested except by such natural enemies as instinct warned them to evade. I met them in town also on their fall and spring migration, among the garden trees and upon the grassy lawns, and along the hedgerows of suburban homes.

In respect to the route of migration, the wood thrush differs from the hermit thrush, which makes its migratory journeys through the woods, and commonly shuns the towns. The wood thrush does not appear to turn aside from the towns for its places of refreshment on its northward and southward journeys. Whenever I met it, it was usually alone, and I therefore concluded that it is not disposed to seek company even among its own kith and kin. Since I learned to recognize its trim, graceful figure, and its short, quick call, I have remarked the wood thrush in my native village, in the large elms and maples along the streets, even to the last of June, usually solitary, and frequently silent, except in its note of alarm. It is not always silent in town, however, and in May its perfect song can often be heard. When the growth of hard maples in the cities and the shady nooks of parks induce it to take up its summer residence, its flute-like music is heard regularly in all its richness and melody. It is peculiarly at home in the dark, deep woodlands of our river bottoms, where it pours out its few notes with surpassing sweetness and richness of quality, inimitable by other birds, and faulty only in the briefness of the strains.

It is perhaps true that few persons, except the trained observers of bird-life, know the wood thrush, though many people have heard its melodious voice and recognize it as belonging to our deeper woodland choir. It should have a wider circle of acquaintance, for in the parks of cities

it can be seen and studied. There it discovers most of the traits which we commend, and there it warbles its silvery phrases. That most people are unfamiliar with it is perhaps attributable to its contemplative and solitary disposition, though when migrating, and when living in the parks of cities, or the inviting parts of the smaller towns, it seems to forget somewhat of its woodland shyness, and will sit calmly while its more apparent characteristics are noted. In spring I have seen it even approach the space around the kitchen door, hopping about in search either of food or nest materials, with the easy familiarity of the robin or the chipping sparrow. One that was making a nest somewhere in the neighborhood one spring made regular trips to our kitchen door-yard, and there picked up strings, rags, and paper, which it fancied would add to the appearance or firmness of the structure. In the introductory paragraph of the chapter on "Friends of the Highway and Door-yard," reference has been made to the familiarity of this species when living in towns and cities.

While there is nothing striking in the appearance of the wood thrush, its dress is neat and strictly in accord with its retiring disposition and habits of seclusion. Its upper parts are bright tawny cinnamon-brown, deepest on the head, and becoming olivaceous on the lower back and tail. Its lower parts are almost pure white, with the breast and sides marked with many large blackish spots, and a tinge of buff on the breast. The bill is dark brown, paler at its base, thus corresponding with its pale-brown feet. It is the tawny brown of the upper parts that gives to the species its name of *mustelinus*, meaning weasel-like in color.

This woodland songster has an extensive range, its habitat being all of eastern United States and British Provinces in summer. For the winter it passes out of these regions into Cuba, Mexico, and southern North America. It appears in this locality early in April, the earliest date of its arrival recorded in my journal being April 9, 1883. Its southern migration from this latitude occurs in the last week in September, or the first week of October.

Simeon Pease Cheny, writing upon "Bird Music," in the *Century Magazine* for June, 1888, says concerning the song of the wood thrush: "This is probably the most popular singer of all the thrushes. He may be heard at any hour of the day during the mating and nesting season, but his best performances are at morning and evening. While his melodies are not so varied as those of the brown or those of the hermit thrush, they are exquisite, the quality of the tone being indescribably beautiful and fascinating." The favorite position of the songster is near the top of the larger willows, or cottonwoods, or any of the larger trees, from which his warbles ring forth with the clearness of silver bells, repeated at intervals for many minutes. In the most favored resorts in the river bottoms, several voices can generally be heard at the same time, and the effect is comparable to the ringing of several neighboring church bells, correspondingly reduced in loudness and volume. Among the bushes and lower growth the wood thrush has other notes, the most usual one being a single "qui-ert," uttered in one syllable, and used as an alarm note. I have frequently heard two individuals, who were some distance apart, carry on an animated conversation by using something like the syllable "quee," repeated four or five times very rapidly, a peculiar call unlike that of any other bird of my acquaintance.

In regard to the food habits of the wood thrush, I refer to the reports of Prof. S. A. Forbes, who states that this species seems to do more good and less harm than the robin, catbird, and brown thrasher, having the lowest fruit ratio and eating the highest number of insects, with only the average of predaceous species. Its advances, therefore, are to be cordially encouraged by the gardener and farmer—a fact which must be especially agreeable to every lover of bird music who has learned to recognize the full, clear, rich, and exquisite strains of this songster.

In its nidification the wood thrush indicates the relationship existing between it and the robin, their nests and eggs being quite similar. The eggs of the wood thrush can be distinguished from those of the robin only by their smaller size, but the differences between the nests are more apparent when examined in detail. The wood thrush

sometimes selects a site in thorny bushes and scrubby or thorny trees. A favorite site is a horizontal branch of hard maple, near the middle point of the branch. A fork of a sapling in partially cleared regions is a very common situation for the nest, and a bough or sapling bent over toward the ground is frequently made the location of a home. It is generally placed at distances varying from five to fifteen feet from the ground.

Nidification occurs in the first week of May, and the nests are usually furnished with full sets of eggs by the middle of the month. A typical nest of the wood thrush is three and one-half by three and one-fourth inches across the cavity, and two and one-fourth inches deep. The foundation is made of dried leaves and coarse stems. The walls are made of muddy, decayed vegetable materials, and soft punk, which form a sort of "papier-mache" composition when dried. The cavity is lined with rootlets and soft stems, somewhat scantily, the rootlets being similar to those used by the brown thrasher and catbird in their nests. The eggs are either four or five, and are greenish-blue, unspotted, averaging 1.02 by .75 of an inch.

John Burroughs, in his "The Tragedies of the Nests," writes as follows concerning the nesting of this species: "There is no nest-builder that suffers more from crows and squirrels and other enemies than the wood thrush. It builds as openly and unsuspiciously as if it thought the whole world as honest as itself. Its favorite place is the fork of a sapling, eight or ten feet from the ground, where it falls an easy prey to every nest-robber that comes prowling through the woods and groves. It is not a bird that skulks and hides, like the catbird, the brown thrasher, the chat, or the chewink, and its nest is not concealed with the same art as theirs. Our thrushes are all frank, open-mannered birds; but the veery and the hermit build upon the ground, where they at least escape the crows, owls, and jays, and stand a better chance to be overlooked by the red squirrel and weasel also; while the robin seeks the protection of dwellings and out-buildings. For years I have not known the nest of a wood thrush to succeed. During the season referred to, I observed but two, both apparently a second attempt, as the season was well advanced, and both failures."

In this section these birds do not fare so unfortunately at the hands of their enemies. During the last week of June, 1896, while enjoying an outing along the Illinois River, my attention was attracted to the numbers of young wood thrushes which flitted among the lower branches of the trees as we rambled along the bank, and their robin-like calls of alarm were regular accompaniments of our progress. The young of both the wood thrush and robin have nearly similar calls, and do not differ much in their nest plumage. Keeping more out of sight, the older birds uttered their incomparable warbles, apparently rejoicing in the fact that their nestlings had escaped the dangers incident to rearing a family in wildwood surroundings. I have found many nests in this locality containing young partially fledged, and from the abundance of the birds in suitable localities, I am of the opinion that most of the nests hereabout are successful in their issue. It is probable that two broods are reared by most pairs, as the nesting season is extended until the last of June, from which time the fascinating warbles are heard no more.

The chief obstacle to the increase of the wood thrush in this region is the regular imposition of the cowbird in placing its eggs in the nest of the woodland songster. The first nest of the wood thrush I ever found contained four eggs of the owner and two of the parasite; and it seemed likely that the two strangers would be able to absorb the most of the care and attention of the parents to the neglect and injury of the true offspring. The majority of nests of the wood thrush I have examined contained one or more eggs of the cowbird, and the careful mothers were brooding them with their own as faithfully as the parasite could desire. Are the birds easily deluded, or do they resign themselves to become foster-parents of the young cowbirds, and thus quietly accept the conditions as apparently inevitable?

Like the robins and other birds generally, the wood thrushes become more shy and retiring as fall approaches. They can be observed early in the morning and before dusk in the evening feeding on the wild grapes and berries so abundant in the autumn in the woods. At this

season their deportment is very similar to that of the robins, and indeed the species is known in some localities as the "wood robin," the robin of the wood. They are to be observed much of their time on the ground and among the bushes and shrubbery, and it is probable that like the robin, they take a large share of their food from the ground, perhaps taking all their insect food in this manner. They do not ordinarily take long flights, but flit from the ground to the lower branches of a tree, and then to another tree, always keeping well away from the observer, and soon disappearing behind the foliage of an intervening bush, or in some sheltering tree. A favorable place to watch their movements is in some secluded ravine through which wanders a little stream, from which they can slake their thirst, and in which they can perform their ablutions in the middle of the warm summer afternoons.

CRESTED FLYCATCHER.

In our rambles through the woodlands we shall certainly see and hear the crested flycatcher, for it is no less noisy and loquacious than the jay, attracting attention almost continually by its loud calls and restless movements. Though one of the most abundant species of its family, and as likely to attract notice as the kingbird, the crested flycatcher is perhaps the least known of its group. Its pronounced preference for the wooded regions serves to keep it away from the society of man, as a rule, and hence its presence is overlooked in localities where it is probably more abundant than the kingbird. However, there are notable exceptions to its preference for the woodlands, for frequently a pair will become attached to some particular neighborhood in suburbs, and at irregular intervals their loud, querulous notes can be heard through the day until the first of July. Especially in the morning is it noisy and demonstrative, flitting restlessly about over the neighborhood, and calling loudly to its mate from favorite high perches.

Noisy and attractive as it is, even many who should

have formed its acquaintance in the woods seem to be unaware of its existence. Though a rambler through the woods since my early boyhood, I never identified the crested flycatcher until early in 1894. Having identified it, however, I was acquainted with it at once, for its voice had its place in the familiar wildwood medley, and I recalled many of its traits and habits which I had not associated with its name. It is a handsome bird, about the size of the kingbird, and its relation to the latter is manifested by many similar characteristics. The greenish-olive of the upper parts, the bright sulphur yellow of the under parts, and the crest which it erects occasionally in its excited moments, will enable the interested student to identify it. Indeed, it appears to be an overgrown pewee, and persons who know the wood pewee should not be slow in identifying the crested flycatcher.

In the woods the crested flycatchers generally perch on dead, bare limbs, often quite high, and generally near the top of the tree. They occupy a higher plane in life than the little wood pewees, calling to their mates with "shrill, querulous, whistling notes." While selecting their nesting sites they are especially noisy, and as they visit every available or probable site in the neighborhood, their proceedings are very likely to receive notice. No piece of woodland harboring a pair of these birds can become lonely, though I have found them least noisy in the vicinity of their nests. In other words, the nest is not usually in the vicinity of the place where they are most loquacious. Nor do they prefer the more open portions of the woods; but secluded ravines and the more primeval parts of the forest, where the wood thrush utters his inimitable melody, and the nuthatch finds seclusion for its home, are the favorite resorts of the crested flycatcher.

This species, like a few others, seems to be influenced by the advance of civilization, and, affected by the inevitable destruction of its natural haunts, is extending its quarters to more cultivated regions. Its nesting in orchards and in nooks of outbuildings is now nothing uncommon. It makes itself perfectly at home about the farmer's door-yard, and acts as though the recesses and cavities about the porch or kitchen had been made especially for

its accommodation. Frequently a pair will take a fancy to the box erected for the purple martins or bluebirds, and will establish a home in the location without looking further, retaining possession in spite of the remonstrances of other claimants. Robert Ridgway says: "At Mt. Carmel several pairs nested every summer inside the town limits, and one pair raised a brood in a nest which was built in a window corner of the county jail, a brick building in the very center of the town."*

Like their better known cousins, the kingbirds, the crested flycatchers have domineering airs and strong pugilistic tendencies, though they discover these traits less toward the larger than the smaller birds of their neighborhood, and less toward others than their own fellows. Yet they are quarrelsome enough among themselves, especially in the mating period. Always in their companionship they display an irritable disposition, and their angry contentions are characteristic of woodland life. Colonel Goss says of them: "They fight fiercely for a mate, and they have a habit that I have not noticed in other birds, of plucking, if possible, the tail feathers of a rival, in order to disfigure him so that he will not be looked upon with favor by the opposite sex; and when lucky enough to pull a feather, it is amusing to see them fuss over it, picking, pulling, in fact fighting it, forgetting for a time the owner, in their exultation over the capture." When angered, they erect their crests so that they are prominently shown, and they display all the reckless bravery of the kingbirds, though they are not so tenacious in following up their attacks. Nor do they swoop down upon their enemy from above, as the kingbirds do, but they make a direct attack, scolding loudly in their querulous manner.

True to the habits of its family, the crested flycatcher takes most of its food, which in the early part of the season consists chiefly of insects, while on the wing. Its flight is stronger and more rapid than that of the kingbird; and since it usually perches higher than that species, it dashes downward or outward to capture its prey. Keeping rather high in the trees, with quick turns and dashes

* Natural History Survey of Illinois, Vol. 1.

it seizes flying insects with loud, voracious snaps of its bill. It also takes many insects from the leaves while flying among the foliage, quickly turning in air with flashing wings to preserve its balance ere alighting, usually on a different perch from the starting point. In procuring a meal it displays greater activity than the kingbird, frequently flitting out and snapping insects from the leaves after the fashion of the redstart and other warblers. When it desires to take an insect from a leaf, even if its prey be within reach, it prefers to hover, and while thus on the wing snap it from its place. In the fall the crested flycatcher is said to feed on the grapes and berries to be found abundantly in the woods.

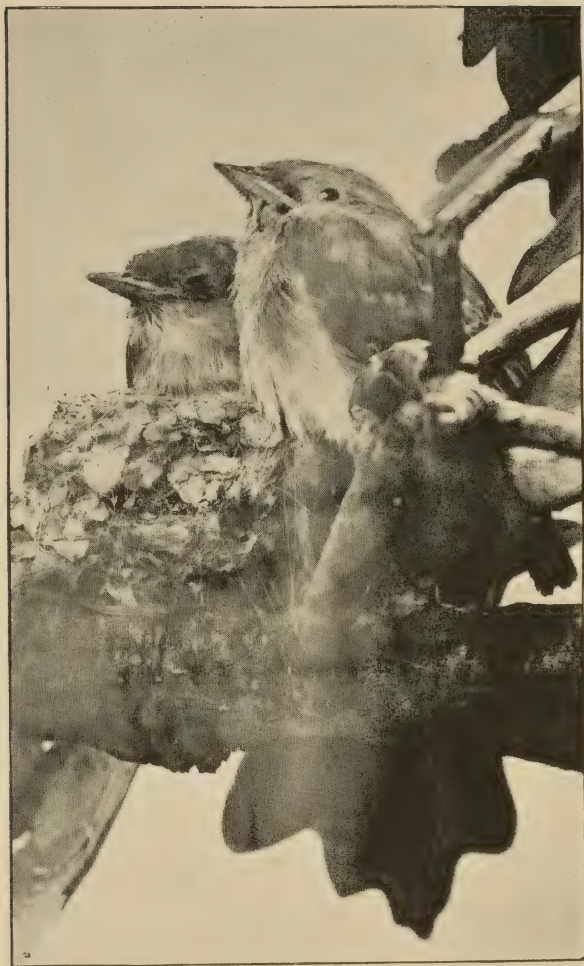
Nidification is begun by this flycatcher about the first of June. Though I have frequently looked earlier for nests, I never found them before June. The regular sites are natural hollows in stumps and trees, and the cavities made by woodpeckers, generally between five and twenty feet from the ground, but often in the denuded tops of high trees. Once I found a nest in the top of a dead tree sixty-five feet from the ground. Its nesting in orchards has been noticed, and it frequently takes possession of the boxes arranged for the bluebirds or martins, or appropriate nooks about dwellings. It uses dried leaves and grass, strips of bark, weed fibers, feathers, and bunches of rabbit and cow hair for building materials, the last three serving as lining. Among the component parts of the nest are nearly always found pieces of cast-off snake skin. One summer day, a younger companion who was exploring an orchard with me in search of cological treasures, after drawing himself up to look into a cavity, slipped back quickly, and taking hold of a small stick, began to prod vigorously into the recess. Observing his excited actions, I asked an explanation. He said, "Why, there's a snake in there." After further examination, however, he found only a large piece of sloughed skin, beyond which were four eggs of the crested flycatcher.

The cavity selected is usually well filled with the chosen materials, which are brought in large mouthfuls by both birds with noisy procedure. The average complement consists of four eggs, though five and even six eggs are

found. Concerning them, Mr. Davie says: "The eggs are remarkable in their coloration, having a ground of buffy-brown, streaked longitudinally by lines sharp and scratchy in style, and markings of purple and darker brown; four to six in number; average size, .82 by .62. The smallest egg selected from one hundred specimens measures .76 by .62; the largest, .93 by .70. The eggs are so peculiar in their style of markings that they may be easily identified, and all the eggs of the North American species of the genus *Myiarchus* are alike in character."

The noisiest periods in the summer life of the crested flycatchers are when they are mating, and when the young are learning to provide for themselves and to procure their living. The first lessons of the youngsters in catching insects are conducted by the anxious parents with vociferous and repeated illustrations, and the novices receive much shrill advice as to how the thing should be done. As the broods are late in leaving their nests, the shrill calls and cries are heard until late in July, and their activity does much to enliven the dull woods at a time when most other species are skulking and silent during the moulting period. Usually a second brood or late family of wood pewees can be heard and seen in the vicinity, and the likenesses and differences of the two related species can be observed to advantage. The crested flycatchers leave us some time in the first two weeks of September, their loud, shrill, but not disagreeable whistles, and their animated, restless movements having filled a place in their forest home which must remain vacant until their return with the leaves of the hardwood trees in the following season.

The crested flycatcher makes its summer home in eastern United States to the Connecticut Valley inclusive, and to the edge of the great plains, ranging northward to Manitoba. It retires to pass the winter in eastern Mexico, Guatamala, and adjacent regions. It commonly makes its appearance in central Illinois in the third week of April, arriving as a rule a few days later than the kingbird. Its vociferous cries immediately inform the interested observer of its advent, and its restless movements make it conspicuous among the wood birds. As has been stated, however, it is somehow overlooked by indifferent persons.



NEST AND YOUNG OF WOOD PEWEE.

From life. After Shufeldt.

WOOD PEWEE.

With most persons knowledge of many of the birds is only negative. They seldom give extended notice to the movements and manners of the birds, but they readily feel that something is lacking when certain birds are absent from any neighborhood or locality where such birds are ordinarily seen and heard. Some birds of plain attire are so perfectly in accord with their surroundings that their presence is oftener overlooked than observed. When they are absent, however, from their accustomed haunts, or from places where we should naturally expect them to be abundant, we intuitively feel the incompleteness of our surroundings, even when we are not able to describe the missing features. Such is the common knowledge concerning the modest little wood pewee. No feature of its plain attire attracts the eye; no unseemly or demonstrative action in its behavior brings it conspicuously before our notice.

“It is a wee, sad-colored thing,
As shy and secret as a maid,”

and it is so closely assimilated with its somber environments in the “twilight noon” of the forest, that except as its sweet, plaintive call reaches our ear, the little flycatcher is likely to be unobserved. To the earnest and sympathetic lover of nature, however, the wood pewee appeals for its share of friendship, and discovers traits which awaken lively interest.

All the flycatchers have a decided family resemblance, and hence the wood pewee has not been clearly distinguished from its congeners at all times, it being especially confounded with the phœbe by superficial observers. The green-crested flycatcher and Traill's flycatcher, however, bear stronger resemblances to the wood pewee than does the phœbe. Yet there is slight ground for confusion of the different species, for each of the four has well-defined haunts and characteristic manners, which serve clearly to identify each and separate it from its relatives. While the phœbe prefers the streamsides and the vicinity of old bridges, buildings and wells, the wood pewee chooses the

secluded parts of orchards, and the forest areas somewhat away from the bank of the stream. The phoebe seldom enters the limits of the towns or villages to find a site for its home, while the wood pewee often establishes its dwelling on the branches of the elms and other trees overhanging the sidewalk in the shady parts of the villages and cities. Robert Ridgway tells us: "The notes of the two species are as different as their habits, those of the wood pewee being peculiarly plaintive—a sort of wailing *p-e-e-e-i*, *wee*, the first syllable emphasized and long drawn out, and the tone a clear, plaintive, wiry whistle, strikingly different from the cheerful, emphatic notes of the true pewee."

The summer home of the wood pewee is eastern United States and British Provinces, ranging westward to the great plains, and in some instances to Manitoba. It winters in eastern Mexico and in Central America. On its northward journey in the spring it enters Illinois generally in the last week of April, though in 1895 I noted the first wood pewee at Virden, Illinois, on April 6th. Immediately after its arrival its plaintive, dreamy calls can be heard, and they are continued in its regular resorts until the early part of August. Its pensive notes are often heard late in the evening, long after other birds have lapsed into quiescence. As late as ten or eleven o'clock, when the bird is sitting on its nest, or perched on a branch near its mate on the nest, its sweet voice floats out in the still night air, probably as an endearing call to inform its mate of its nearness, or to reassure itself of the other's watchful protection, as the child frequently calls to its parent in the night to reassure itself of the loving father or mother's faithful guardianship. The "rain-crow," or yellow-billed cuckoo, the confiding chipping sparrow, and some other common birds, have this habit of uttering their calls after the regular hours of bird activity.

The wood pewee is fond of a particular perch for its accustomed headquarters, commonly near the extremity of a dead branch in the lower part of a tree, though sometimes it chooses a branch near or above the middle of the height of the tree. Its fondness for a particular station, either high or low in the tree, is readily observed, and its nest

is commonly located near its accustomed perch, if the nesting season is at its height. There it will sit almost motionless waiting for a passing insect, occasionally turning its head to sweep the view on either side. On perceiving a fly, beetle, or other luckless insect winging its way through the air near its perch, it will fly out and attempt to capture it with a quick snap of its bill, often making several attempts, or captures, before returning to its seat. It will sometimes make many sallies into the air in a short time, and frequently appears to turn completely in the air, so rapidly and abruptly does it turn after attempting a capture. It is probable that it makes many unsuccessful dashes after prey, as the kingfisher makes many bootless plunges into the water in its pursuit of fish. I once observed a wood pewee make more than thirty sallies from one perch, a low dead branch in a large silver maple in town, and when I left the spot the pewee was still on the limb waiting for passing insects. The pewee seldom flies upward as does the kingbird, but usually flies outward, though it sometimes rises as it dashes outward to strike the line of flight of its quarry.

Individuals of this species seem to have little desire to associate with their fellows or with other species. In the somber portions of the forest which they frequent, and in the secluded parts of the orchards where they dwell, they seek solitude. The woods bordering the streams and in the bottom lands are favored resorts, the damp woodlands and decaying vegetable matter sustaining an abundance of insect life, which is necessary to the presence of these expert insect-catchers. These dark woodlands are dreary at best, and the melancholy, far-away notes of the pewee add little to the cheeriness of the scene, yet they are in perfect harmony with their surroundings.

The wood pewees make their nests about the first week of June. The invariable site of the nest is a horizontal branch, on which the structure is placed or "saddled," often at a considerable distance from the trunk or body of the tree, and at a varying height between six and forty feet from the ground. In the bottom woodlands, the widespreading willows furnish convenient sites, and in the higher woods the horizontal arms of elms furnish the desired situations,

the nest being commonly placed on a dead branch or a bare portion of a living limb. The nest is made of fine dried grass, covered with willow cotton and lichens, and lined with fine grasses. The structure is fastened to the branch by pieces of gossamer and cottony fibers, and is characterized by its shallowness. An average nest measures two and three-fourths inches in external diameter, the cavity being one inch and seven-eighths in diameter and three-fourths of an inch deep, a snugly rounded, exquisitely constructed saucer for the reception of the eggs, commonly three, sometimes four. They have a creamy white ground, and are spotted with reddish-brown and lilac, the spots often forming a wreath around the larger end. They average .75 by .55 of an inch. Robert Ridgway beautifully says that the nest "is one of the most elegant examples of bird architecture. From beneath it usually so much resembles a natural protuberance of a branch, or knotty excrescence, that but for its betrayal by the owner it would seldom be discovered. It is a very compact, saucer-shaped structure, with thick walls, and the whole exterior is a beautiful 'mosaic' of green, gray, and glaucous lichens."

The notes of the wood pewees are heard oftenest in the breeding season, which sometimes is prolonged into July, and it is probable that two broods are raised in many instances. Nests with young are not uncommon at the twentieth of July, but whether these are due to late nidification in the first attempt, or to failures in earlier attempts, or to second nests, I am unable to state with certainty. Any of the three causes may operate at various times. During August and until they take their departure for their winter homes, the wood pewees are heard less frequently, and they resort to higher places in the trees. In the dark maple groves and in the forest they can be seen flitting out into the open spaces for insects, darting out and turning abruptly upward or downward, and often taking insects from the surface of the leaves while hovering in warbler-like fashion. After the nesting period they are less solitary, and several are often seen in the same part of the grove or woods, darting to and fro in pursuit of their prey. They are then most active in the

morning and late in the afternoon, often prolonging the chase until darkness drives them to their rest. Most of them leave this latitude in September, while a few frequently remain until early in October.

PHÆBE.

It was in my early rambles through the woodlands that I first met and learned to love the gentle phæbe. While it is not essentially a bird of the woodlands, its favorite resorts are the bridges which cross the streams, and in this region the streams mark the location of our forests. The water-courses of this great prairie section are fringed by the wooded areas, now reduced to narrow ribbons on either side of the creeks, if indeed not removed altogether, and in my boyhood rambles along one of these Illinois creeks I received my early lessons in birdways. Among the treasured pictures of my early years of the

“time when meadow, grove, and stream,
The earth, and every common sight,
To me did seem
Apparelled in celestial light,
The glory and the freshness of a dream,”

there stands the old bridge over the creek along whose banks I so frequently wandered. Recalling the familiar scenes, in fancy I again stand beside the stonework supporting the ends of the bridge, and looking up to scan the beams above my head, I seem to see the form of the gentle phæbe darting from its nest, and to see it perch on the end of a dry twig over the stream, uttering its abrupt, emphatic call. It is no matter of wonder that though devoid of the colors which render attractive some birds otherwise little worthy of our esteem, the phæbe has a welcome place in the friendship of all who know it. Its preference for the vicinity of man; its early appearance at the first evidences of the opening of spring; its refined and modest manners, and its perfect freedom from any imputation of harm in its food-habits, all combine to give it a high rank among the favorite and familiar species.

The young lover of nature who has missed the presence and companionship of many of the birds through the drear winter, longs for the first genial breezes and other indications of spring, for he knows that the voice of the phœbe will then soon greet him in his woodland rambles, and he improves the first opportunity to visit the places made bright by this harbinger of spring.

The phœbe loves to dwell about the mill-pond or the mill-race, and there its presence is welcomed by the miller and his assistants, who usually know the location of its moss-covered home on a moist beam or a dripping rock. They frequently stop a moment as they pass in their work to watch the progress of the family every summer until the youngsters venture to flutter out for themselves. When the farmer leads his horses, weary and thirsty after their toil, to the well for their noonday draught, he learns to look for the appearance of the phœbe from its nest in a corner of the rude shed over the well, and his children frequently clamber up to peep into the domicile and to note the number of the eggs, or the growth of the hungry brood. Or, if the well-roof is not the chosen site of the home, a beam in the partly open barn, or under the carriage shed, may allure it to fix its habitation thereon, and as the children play about the outbuildings they soon discover the residence of their familiar friend.

The phœbe makes its summer home in eastern United States and British Provinces. Its western limit is the edge of the great plains. In the fall it retires to the southern part of the United States, eastern Mexico, and Cuba. Its northern limit in winter is about the thirty-eighth parallel. Not long after the ice has permanently disappeared from the streams whose banks it frequents, and before the robin, bluebird, and song sparrow have ceased to utter their first songs, the phœbe has taken its accustomed place on the bare extremity of the elm bough near the bridge. It prefers the vicinity of water, for over streams and ponds swarm the insects which it regularly makes its fare, and along the beds and banks are the moss and damp rootlets it uses in the construction of its home. Often, however, its preference for human surroundings leads it to live away from either stream or pond. What-

ever its chosen neighborhood, it early makes its appearance, and its voice and presence are an earnest of the approaching season. The trees do not usually don their summer robes until several weeks after its arrival, and as it perches on bare limbs near the future site of its nest, its manners can be studied with uninterrupted view of its surroundings. Like many other familiar birds, the phæbe will sometimes return to the same place summer after summer, showing a remarkable attachment to a particular spot.

From its perch over or beside the streamlet, the phæbe dashes out and takes the flying insects which dance in the sunshine and dart to and fro above the shallow water. Turning quickly in air, after the manner of the kingbird and the wood pewee, it returns to its perch, or to another one favorable to the continuance of its occupation of procuring a meal. It apparently is endowed with a more nervous temperament than its relative mentioned, for it is very restless, being more like Traill's flycatcher in this respect. Even while sitting on its perch, its flitting tail and nervous drooping of the wings and other quick motions, betray its restless disposition. Indeed, it even utters the call which suggests its name in an abrupt, jerky manner, and in most of its actions it reminds us of children who seemingly can't keep still for more than a little moment.

Thus the phæbe passes the days of its summer sojourn, unwittingly allying itself with the agriculturist as it satisfies the demands of its daily existence. Frequently as it sits it calls in the well-known syllables which have given the species the popular name of "pewee." These syllables are often uttered in the sharp, twittering manner peculiar to the flycatchers, and to the sympathetic listener they express a sense of gratification at the capture of a choice bit of food, or a feeling of joy in the possession of a home and congenial surroundings. This twittering is not properly ranked as a song, for the flycatchers are not classed with the songsters; but it is as good a song as is executed by some of the real singers. The flycatchers should have full credit, if they exercise the talents they possess, even if their efforts are not so noisy as those of some of the so-called Oscines.

The phoebe nests comparatively early. In central Illinois the structure is usually ready for the eggs by the end of the first week of April. The nest is placed on a beam of a bridge or other similar edifice, or on a projecting rock or niche in abutments. The liking of the phoebe for the vicinity of bridges has caused it to receive the common name of "bridge bird," and "bridge pewee." As before mentioned, the familiar habits of the phoebe often lead it to establish its home about the barnyard and outbuildings. Frequently it finds a tempting niche among the stones or bricks in the walls of a well, and there makes a home below the ordinary level. I knew a pair to nest nine feet below the rim of the well-curb, and five feet below the ground level, in a place in the wall from which a brick had fallen. The well was used daily, the water being drawn up by means of buckets attached to a rope passing over a wheel, which was suspended from the middle of a small shed over the well. I was doubtful whether the young birds would be able to flutter out of the well successfully, but the elders knew their business better than I, and hence I offered them no advice about the matter. I never knew the fate of the brood, though I visited the place frequently to watch developments, for one day I found the nest empty.

Often the nest is cemented to the perpendicular side of a joist or beam under bridges. In such instances the muddy materials used in the nest adhere to the wood, and on drying support the weight of the nest. In the *Oologist* for March, 1895, an illustration is given of an unusual nest site of the phoebe, "on a $\frac{3}{8}$ -inch cotton rope, which was stretched at an angle of 42° by exact measurement;" and an unusually interesting article by Ernest W. Vickers is based on this remarkable nesting site. The usual foundation of the nest is mud, with which are mingled fine rootlets and mossy materials, gathered by the birds chiefly while they are on the wing. They dash toward the material they have selected, hover a moment in gathering it, and then return to the perch to pause a moment before flying to the nest to deposit the substance collected. When the material they are gathering is tougher than usual and does not tear away readily from its place of attachment,

it is interesting to watch their efforts to pull away the substance while they are fluttering in the air. Horsehair is often used in lining the nest, and the exterior of the mud walls is sometimes coated with dark green moss taken from the moist logs and rocks. If the nest be undisturbed, the same foundation is used for several years, the pile growing each year by the addition of similar material. More than one brood is reared in the season, as I have found nests with unfledged young as late as July 15th, in situations where the premises had not been harried earlier. "The eggs," says Davie, "are ordinarily four or five in number; clutches of five are the most common; they are pure white, sometimes sparsely spotted with obscure or well-defined reddish-brown dots at the larger end. In exceptional instances, the pewee deposits six or seven eggs. Their average size is .81 by .52."

Of this favorite species, Mr. J. H. Langille, in his "Our Birds in Their Haunts," thus writes: "The phœbe has a better reputation than either wren or robin; approaches us with even more confidence than the bluebird; can vie with the swallow in her destruction of noxious insects; in the self-sacrifice of her domestic cares is outdone by none, and is the sure herald of the bright and happy days of spring. On the other hand, no pilfering or cruel habits or faults of any kind detract from her many virtues. In moral suggestiveness, the history of such a life is more potent than a fable, and welcome as the beauty and fragrance of the flowers. Then cordially greet this summer resident, more disposed to self-domestication than any other bird of our country."

TUFTED TITMOUSE.

It is unnecessary for us to ramble far through the woods to form the acquaintance of this sprightly, merry-spirited creature, for he is himself a Rambler of the woodlands. While the wood thrush, the crested flycatcher, the wood pewee, and the phœbe have certain portions of the wood in which they spend most of their time, and in fact appear to have established ways, the tufted tit-

mouse is more of a Bohemian, flitting here and there, as the frolicsome company with whom he associates may please to go. However, it must not be presumed that he is trifling away his time as he thus makes merry with his boon companions, for a more industrious fellow never roved the woods. He has learned the secret of working with a willing heart, and that which is a task to some of the birds is apparently a real pleasure to him.

Let us take a seat in some retired and shady spot, perhaps on the grassy bank of the little stream along which we are accustomed to ramble, and there leisurely wait for the appearance of any of our feathered neighbors. Though at first all may be quiet and drowsy in our surroundings, we may soon hear the emphatic "chick-a-dee-dee-dee-dee," or the chattering twitter by which we have learned to recognize the active, familiar chickadee, but the unusual force and emphasis now marking the production cause us to look more closely for its author. There he is, clinging among the lower branches of an adjacent oak to reach a tempting morsel. Now he is tugging it from its lurking place, and brings to the light a caterpillar eating its way into the life of the tree. Having secured the prize, he flits to a convenient perch on a bare limb, and sitting proudly erect, he chatters his satisfaction and pleasure.

We first note his plump, well-fed form; then we mark the most prominent feature about him, the stately crest, which gives him the name of tufted titmouse. The possession of a crest as an ornamental feature in the plumage is so unusual that most of the birds thus decorated have names indicative of the fact, in witness of which we have the crested flycatcher and the pileated woodpecker. Perhaps the cardinal received its ecclesiastical title because that important and high official of the Church of Rome wears a red hat as emblematical of his office. The generic name of *Lophophanes*, given to the group of birds including the tufted titmouse, means "to appear with a tuft or crest," and if you are not familiar with the tufted titmouse, look for this feature first. Then we note that its upper parts are ashy, with a black band on the forehead, just at the base of the crest. Its under parts are dingy white, but the sides of the body are chestnut, or yellowish-

brown. If we are near enough, we may see that the bill and feet are lead color. This titmouse is a trifle larger than the black-capped titmouse, or chickadee, and is somewhat smaller than the downy woodpecker, with which it associates in its roving through the woods.

As residents of the woods, the tufted titmice are not disposed to resort to any extent to the "upper story," but prefer the level of the lower branches and the tops of the weeds and bushes. They are rather noisy, and remarkably fond of companionship, usually falling in with the chickadees, nuthatches, creepers, and juncos, in winter. They are seldom seen without associates of some kind, except in the nesting season. They move about through the woods in little troops, each individual apparently interested solely in its own affairs, and paying no particular attention to the movements of the others. We may first be informed of the vicinity of the little chickadee by its gentler chatter; presently we may hear the heavier "quank" of the white-breasted nuthatch, followed by the more emphatic scolding of the tufted titmouse; then the sharp "plick" of the downy woodpecker, who stops to drum occasionally upon suitable branches. We begin to imagine that we are in the midst of numbers of birds, when one by one they disappear, separately as individuals, but entirely as a troop, and the woods about us again become silent.

These sprightly creatures are not confined to the woods in their strolling life. They remain with us throughout the year, and during the colder months, when they find it more difficult to procure their insect fare from the icy and snow-laden branches, they enter the gardens and door-yards in the country, seeking to add to their scanty forest larder some of the tid-bits from our tables. At such times they may be seen with the snowbirds and chickadees, perching at times with stately air upon the dried stalks and weeds, and at other times clinging head downward in their attempts to secure attractive objects from the lower sides of the limbs.

The author of "Our Own Birds" says of this and related species: "The titmouse, like its cousin, the wren, is an active, cunning little creature, ever on the go, hop,

skip, and jump, from branch to branch, head down, or head up, as is most convenient, incessantly prying into the private affairs of the insect world, laying waste the prospects of a promising family with one stroke of the bill, and hunting up the vermin with such untiring industry as fairly to win for him a conspicuous place among the farmer's friends."

In the latter part of February the numbers of individuals of this species seem to increase, probably through the arrival of visitors from more southern localities who are seeking northern summer homes. They grow more noisy and musical as the nesting period approaches. We shall not be able to observe them to any extent at this season in the towns and door-yards, for they become less familiar and retire somewhat from human surroundings at the mating and nesting time. Then they rove less through the woods, and seek a place which they can call home for a few weeks, dropping their companions of the fall and winter, who likewise become more staid and settled in their ways. They generally have a song for every occasion, and chatter and call wherever they go; but at the close of winter the males begin a louder, clearer, sweeter call, which gives new life to the woods. This song is composed of the syllables "pe-to," repeated indefinitely, and variously modulated by different individuals. Colonel Goss translates the song by suggesting the syllables "che'o, che'o, che'o," as used at times. The mating period develops considerable jealousy and rivalry among the males, for they will permit no rivals to cast affectionate glances at the ladies of their choice, and their activity in attending them and looking out for any demonstrations of rival suitors is very noticeable. Colonel Goss says that "while their mates are building a nest they do not aid, but proudly follow her back and forth, singing their very best to cheer her, and in so doing betray their nesting place and make it an easy find."

The nest of the tufted titmouse is made in a cavity in a tree, trunk, stump, or log, either high or low indiscriminately. A natural opening in a knot-hole, or the deserted home of a woodpecker, is preferred, though the titmouse does not hesitate to make excavations for itself in decay-

ing and soft wood. The downy woodpecker is perhaps its best friend in the matter of fitting up the cavity in harder wood. On a foundation of dried leaves and moss, the nest is made of moss and vegetable fibers, and it is lined with soft fibers and cowhairs. A complement of eggs consists of five to eight. They have a ground of pure white or creamy white, and are speckled with shades of reddish-brown. They average .74 by .54 of an inch.

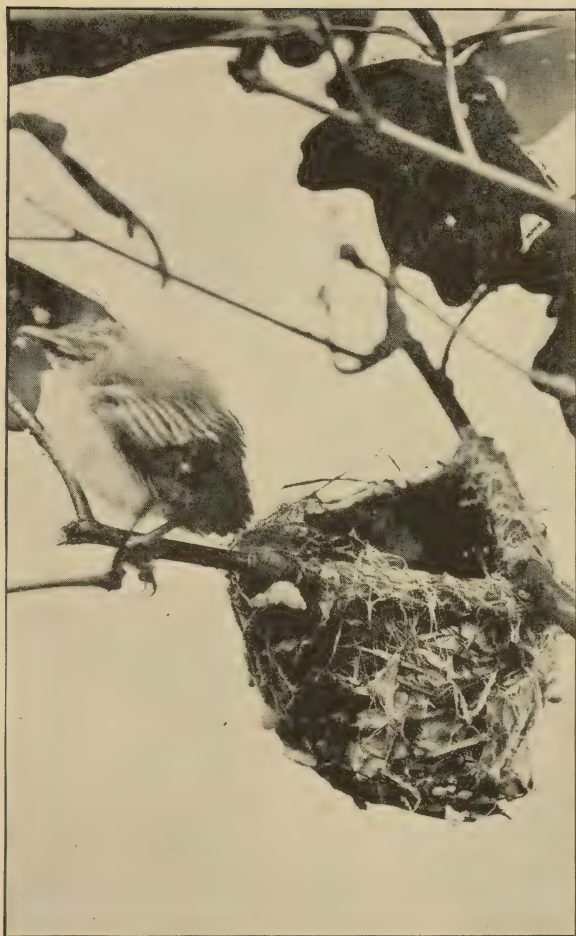
After the parental cares are over and the young have left the nest and become self-supporting, these birds resume their roving life, indicating their presence by their noisy calls and their notes similar to the chatter of the real chickadee. They are fearless little rovers, and do not hesitate to enter the parts of the woods appropriated by the larger hawks. I have seen them flitting and chattering in a large tree in whose top several young red-tailed hawks were receiving their final lessons in domestic economy from their elders. The little merry-makers seemed not the least disturbed by the proximity of the larger birds. Indeed, they had little ground for fears, for these larger buzzard-hawks are notably good-natured, and rarely or never molest the smaller birds of the forest, where they find the food they ordinarily desire.

The titmice do not fly far in their restless movements, but flutter from one part of a tree to another. They are somewhat dignified in their deportment, and are easy and graceful, except when they are attempting to reach any morsel of food not easily accessible. They frequently gather acorns in the winter, and it is interesting to watch an individual secure the contents. It will hold the acorn firmly against its perch with its feet and peck it lustily with its stout, sharp bill, until it has cracked or broken the hard crust; then still holding the fractured acorn as before, it will separate the broken parts with its bill and eat them with relish. It treats large insects and caterpillars in the same way, using its slender feet in a manner quite foreign to the ordinary ways of the smaller birds.

RED-EYED VIREO.

The fresh foliage of the maples, the unrolling and expanding buds of the elms, and the evanescent blossoms of the apple, cherry, and peach trees bring to us a host of smaller birds which linger in southern latitudes until they are assured of the immediate opening of the northern warmer season. The vireos, the flycatchers, and the warblers, in fact all the birds that are strictly insectivorous and take their food from the blossoms and foliage of the trees, defer their appearance until the food they desire has become abundant. At the favorable time they come in full song, and usually attired in their showy summer plumage, they flit among the lately unfolded vegetation, giving additional charm and animation to the growing beauty of arboreal life. Prominent among them is the red-eyed vireo, a most abundant resident of the orchard, park, grove, highway trees, and woodlands. Ordinarily it precedes the other vireos in its return to its summer home, and taking up its vocation of singing and gleaning noxious insects from the bark and foliage of the trees it frequents, it is soon at home as in the preceding summer.

Although the charming song of this little greenlet is heard commonly issuing from the trees which shade the sidewalks in villages and cities, and is also characteristic of the orchard and garden trees, in this section it is especially noticeable in the woodlands, where the emphatic notes are heard at any time of the day in the vocal season. This vireo is abundant in the elms and maples of the highways, parks, and groves in the early days of the season, since the hardwood trees of the woodlands are slower in donning their vernal robes, but in the mating and nesting period the red-eyed vireo is a typical bird of the woods. Though much has been written concerning the red-eyed vireo, and though its songs are common both in public and retired places, the author of the music is to the mass of people known only in a general and superficial way. The red-eyed vireo has many interesting traits, however, and the unreserved liberality with which it dispenses its music through the summer, the confidence it manifests by



NEST AND YOUNG OF RED-EYED VIREO.

From life. After Shufeldt.

swinging its fibrous basket above our frequented streets, and its services to vegetation strongly recommend it to our personal acquaintance and friendship.

While the charming little red-eyed vireo is worthy of our study, he does not like to be watched. When we try to observe him closely, he will move from his perch, generally near the extremity of a branch in the upper part of the foliage, and take a similar position higher or in an adjacent tree. As we listen to his song we peer up into the foliage to obtain a glimpse of the earnest musician, whom we perhaps see industriously gleaning among the fresh buds as if the thought of singing had never entered his mind. While he is bending over his lunch we hear the song again, and as he lifts his head we are able to note something of his appearance. His upper parts are dark olive green and his lower parts principally white, markings so common to many of the smaller birds that it is difficult to identify them at a distance and amid the environments which obscure the colors of their plumage. The red color of the iris of this vireo serves to distinguish it from the other greenlets, when it is examined under favorable circumstances. The bird is scarcely over six inches in length, and its markings are assimilated so closely with the dark green of the foliage that it is always difficult to discover the little creature when we hear the song. From the action of the little vocalist, the bird-gazer would not connect him with the music heard, for all the while he is apparently interested solely in procuring a meal from the adjacent bark and buds; and even while his head is bent down to pull a dainty morsel into the light, his emphatic notes are uttered.

The song of the red-eyed vireo is short, but one production is generally followed by another after only a short pause. It consists of four or five notes, uttered in urgent, monitory style, and repeated at short intervals throughout the day. Often the voice of the red-eyed vireo is the only one heard during the noon hour, when the heat has silenced the voices of all the other songsters. In short, emphatic sentences he seems to admonish us with parental interest, and from this quality of his song he has been characterized as the "preacher" by Wilson Flagg, whose

rendition of the song enabled me immediately to identify this vireo. The song is louder than the tender expression of the warbling vireo, and in tone and execution has a closer resemblance to the carols of the robin than to the songs of the other vireos. We first hear three or four notes clearly articulated with a rising inflection; then there comes a short pause, followed by a series of four or five notes executed as before; again there is another emphatic song, and thus we become familiar with the persistent roundels of the red-eyed vireo.

Both the warbling and the red-eyed vireo are common residents of the tall elms and maple trees of the highways and dooryards. They are also found regularly in the maple groves and the parks, and both are also found in the woodlands. The red-eyed vireo, however, is more attached to the woods than the warbling vireo, and in the woodlands it discovers its most charming traits. Robert Ridgway says that "taking the country at large, the red-eyed vireo is perhaps the most abundant woodland species." It is especially abundant in the large trees growing on the immediate banks of the rivers, among the elms, maples, cottonwoods, and willows. Its urgent notes ring out in fullest power, sharpest tone, and most persistent repetition in the woods thus fringing the rivers and small streams. The fine groves of oak, hickory, and walnut, yet standing here and there throughout our upland prairie regions, are favorite resorts of this vireo, though woods bordering small water-courses have the most attraction for it. It seldom seeks the depths of the woods and groves, but prefers the outer parts, though it does not often get out into the direct sunshine, as the vireos are all creatures of the shade.

The summer home of this species is eastern temperate North America. It ranges westward to the Rocky Mountains, and winters from Florida to northern South America. Our red-eyed vireos come back to us about the beginning of the third week in April, usually preceding the warbling vireo a few days. They remain until the middle of September, or even until the last of the month in favorable weather. Their lively movements in the time of migration, when they dally in the tree tops, and flit in and out

of the foliage, snapping down insects taken from the leaves and often on the wing, have caused them to be styled the "red-eyed flycatchers." They also resemble the warblers in their flitting movements, and are frequently mistaken for warblers in the dark foliage of the tree tops. They travel with the hordes of warblers seeking summer homes far beyond the northern limits of our State, and for a bright golden day of the brief season of migration these late species will cause the vernal woods to seem animate with these gay, flitting creatures. The warblers hurry on to their destinations, but the vireos remain, and soon their welcome songs express their pleasure in again establishing themselves in their summer home of love and melody.

The nidification of the red-eyed vireo begins about the middle of May, and the eggs are deposited in the last week of May, or the early part of June. The site of the nest is a horizontal fork among the twigs of the trees which these vireos frequent. Like the homes of the other vireos, the nest is suspended by its brim, thus forming a pensive but not loosely swinging cup. It is generally from one to four feet from the extremity of the branch that supports it. It is made of fine fibers of weed bark, grasses, strings, downy feathers, and gossamer, lined with fine grass. The cavity is rarely less than an inch and three-fourths across the top, and about one inch and a half deep. The eggs vary from three to five, though sets of three and four are the most common. They have a pure white ground, and are sparsely marked with spots of blackish-brown, chiefly toward the larger end. They average about .85 by .56 of an inch. The nest is situated from five to thirty feet from the ground, averaging higher in my experience than the nests of the warbling vireo, for more nests of the latter are found in lower situations.

The nests of the red-eyed vireo that I have examined are smaller in diameter than those of the warbling vireo, and the cavities average a trifle deeper, the homes of the warbling vireo appearing larger and shallower. In the construction of the nest the female red-eyed vireo does most of the work, if not all of it, and she certainly understands the difficult process of interweaving the sundry

materials. The bark fibers are passed in and out, around and under, inside and outside, in a manner so wonderful that we can not fail to praise the skill of the little builder. Frequently she is assisted by the male, who fetches materials for her to arrange into the nest, and sometimes when she becomes impatient to occupy her new home before it is completed, and begins to deposit her eggs, the male continues to bring materials, which she adjusts according to her fancy. The exterior of the snug little structure is sometimes partially covered with soft, grayish lint and vegetable worsted, though there is great variety in the nests in regard to finish and embellishment.

The red-eyed vireos have a propensity to scold, and their harsh, angry "g'way" is a common sound in the vicinity of their nests, for whoever or whatever enters the claimed limits of a pair of these birds is certain to be well berated for even unconscious trespass. Their jealousy is easily aroused when they are nesting, and the commonest sound of the woodlands in summer is the almost continual scolding of these vireos. The blue jays are very likely to provoke the anger of the watchful householders, and with a storm of excited "g'way" abuse, the owners greet the offending intruder and demand his withdrawal from the spot. One summer I saw a blue jay skulking in the vicinity of a nest of these vireos. I was attracted to the place by the sharp, rapidly repeated cries of the vireos, and I detected the blue jay when he was about two feet from the nest. He was on the branch supporting the nest, but he had evidently not touched the guarded spot. Both birds were nervously excited and "crying angry," uttering their maledictions so rapidly that these seemed almost continuous. Each of the little defenders would dart upon the head or back of the marauder, and striking him with a loud, angry snap of the bill, would quickly dart out of his reach. When the jay turned his head to follow the movements of the retreating bird, the other parent would attack him from another direction with a similar loud snap and angry outcry, and thus they so galled the big fellow by their savage and persistent attacks that he was forced to desist from his evil designs. The blue jay tried to be indifferent at the beginning of



DOWNY WOODPECKER.

From life. After Shufeldt.

their attack, but soon I could see his eyes flash with anger at every stroke he received, and both the little belligerents were certain to strike him adroitly at every turn. I have seldom seen two human beings support each other more intelligently and effectively than those two little vireos.

The red-eyed vireo is chiefly insectivorous, especially until after the brood is reared, the food of the nestlings being almost exclusively insects and larvæ. This vireo is very active in its pursuit of insects in the upper parts of the trees, during the early part of the season, and its movements then have been likened to those of the warblers. It has a sweet tooth also, and the ripening berries of the woods allure it to modify its ordinary diet of insects. Along with the catbird and the brown thrasher, it will occasionally dine upon the "pokeberries" found beside the hedges that border the woods. The raspberry and blackberry bushes which grow in some parts of the woods furnish it a welcome change. Unlike the warbling vireo, which resumes its accustomed habits and warbles its familiar songs after the breeding and moulting season, the red-eyed vireo makes a partial change in its bill of fare, sings only occasionally, and visits more frequently the bushes growing under the trees it inhabited exclusively in the early portion of the season. The friendships it forms in its moulting resorts are too strong to be broken altogether, and the taste of the new dishes it finds lingers in its mouth and draws it frequently from its lofty insect fare. It apparently knows full well the resources of the woods, and means to live upon the best its surroundings afford—an ever cheerful, happy-hearted fellow, like all true woodsmen, contented in the pleasures of a well-regulated, serviceable existence.

DOWNY WOODPECKER.

The attention of the woodland rambler can not fail to be attracted by the noisy calls and obtrusive actions of the woodpeckers, but while the habits of all the members of this family are quaint and interesting, the active movements and sprightly manners of the smallest of our wood-

peckers invite our present consideration. It is the practice among bird biographers to describe the habits of the hairy woodpecker at some length, and then to characterize our little downy friend by saying that in general coloration and essential habits it is the miniature of the hairy woodpecker. The downy woodpecker, however, has a marked individuality of its own; and while much that is written of the hairy woodpecker applies equally to the downy, the latter appeals to us by coming among us more frequently, and thus affording us better opportunities to study its habits about our homes in town as well as in the country.

The habitat of the downy woodpecker is eastern and northern North America, ranging northwest throughout Alaska. It is a permanent resident, and hence it can be found when most of the birds are absent. The winter birds of central Illinois and adjacent localities in the upland prairie regions are so few that they arouse additional interest because of their welcome presence when the regular tide of bird life is at the ebb. When the drifting leaves and sombre changes of late September and early October indicate that the season of gayety and song has ended, the summer birds rapidly disappear from their resorts, and the enthusiastic lover of animated nature feels that much of the cheer and brightness of the locality has vanished with his avian friends. Some of the birds, regardless of the frosty breath of approaching winter, linger among us, and thus afford us opportunities of observing the habits of birds amid hardships which few of our feathered friends will face. The limited number of winter residents in any locality renders the formation of their acquaintance comparatively easy to the industrious observer, and such acquaintance will serve as a substantial basis for the study of the summer birds as they return to us.

Few persons will have any difficulty in identifying the downy woodpecker, for he has the distinction of being our smallest representative of a group unusually well defined. Who is likely to mistake a flycatcher, or a warbler, or a vireo, for a creature so unique and original as a woodpecker? True, the red-headed woodpecker does

behave quite thrush-like when it varies its diet with our apples and pears. We admit that the flicker often sits down to dine in the pasture with the ease and air of the meadow lark. But the downy woodpecker is too observant of the peculiar practices of its family to mislead the observer of its restless movements, and hence it is easily identified by the discriminating novice. The chattering chickadee or the roving nuthatch will certainly bring the little snare drummer within easy observation. Thereafter our further acquaintance with him will rest chiefly upon our ability and zeal as a bird-gazer.

The chief colors of the downy woodpecker are black and white, the former serving as the ground upon which are placed the white trimmings. He has a well marked line of white down the back, and two white stripes on the side of the head, as well as two stripes of black. His black coat is gayly ornamented with spots of white, which markings are supposed to give him some resemblance to the guinea-fowl in coloration, and hence he is called in some localities the "little guinea woodpecker." This dapper little Rambler of the woods wears a neat white vest as a contrast to his mottled coat, and adorns his tail by sticking two white feathers in each side. To add to his appearance and that others may distinguish him from his similarly attired spouse, he has a patch of bright red on the back of the neck. Some persons call him the "little sapsucker," and thus distinguish him from the hairy woodpecker, which is known popularly as the "big sapsucker." He is thus designated because it is popularly thought that he relishes the sap of the trees into which he drives his probing bill. Other species of woodpeckers are also known by this indefinite and misleading title, which has become a sort of general term applied to any bird woodpecker-like in movements, whose habits are not commonly understood.

There is one genuine sapsucker, the yellow-bellied woodpecker. It bores into the bark of favorite trees until it reaches the tender sapwood, which it eats with the sap that flows from the numerous shallow holes it drills. This genuine sapsucker hurts the trees frequently in the early spring, but both the hairy and the downy woodpecker are

guiltless of thus hurting trees, and they are unfortunate in being thus classed by inaccurate observers and thoughtless persons. The horticulturist who has seen the downy woodpecker carefully searching along a branch of an apple tree in his orchard knows that the attention of the little gleaner is given solely to the decayed parts of the tree or to spots infested by destructive larvæ, and hence no damage is done by its boring into the bark. In fact, its endeavors tend to prolong the life of the tree or branch, and the farmer who persecutes this hardy friend or permits it to be molested on his premises must be sadly deficient in the knowledge of his interests.

The winter movements of this sprightly little woodpecker bring it before the notice of those who seldom visit the woods, for then it frequently comes into the trees along the highways and in our door-yards, apprising us of its presence by the sharp metallic call peculiar to it and its larger companion. Like the chickadee, the downy woodpecker is very social. It is often seen roving with the chickadee, very frequently enlivening our door-yards with cheerful calls and sprightly movements. The chickadees and nuthatches come into our yards in little strolling companies, and among them is usually a downy woodpecker, for the downy seldom seeks the company of its own kind. It generally falls in with the roving nuthatches and titmice, and its sharp "pleek" is a common accompaniment to the hoarse "quank" of the white-breasted nuthatch and the cheerful chatter of the chickadee. The downy frequently travels as a companion to the hairy woodpecker, and the loud "pleek" of the big fellow generally finds an echo in the somewhat weaker call of his little consort.

When we hear the sharp, clear call of the downy woodpecker, we must look for him clinging to the trunk or a lower branch of a convenient tree. He settles himself securely against his support, bracing himself with the stiff, sharp feathers of the tail, and is soon drilling a minute tunnel into the inner bark in search of the eggs and larvæ of the insect foes of the tree. His strong, chisel like bill is well adapted to this sort of work, and when the insect is reached in its woody burrow, the viscid,

extensile tongue of the woodpecker is thrust through the aperture and the luckless victim is quickly transferred to the gullet of the captor. Then he hops around the trunk or along the branch, peering into every likely crevice. Having finished his examination of the trunk or branch, with gleeful ease he flies in rapid, sweepy undulations to another promising place to continue his investigations. At the beginning of his short flights he utters his call, and often as he drops against his base of operations he expresses his pleasure with his familiar note. The downy woodpecker is not restricted to the trees in his quest for supplies, but can often be seen on the ground about the kitchen door, industriously pecking some frozen morsel thrown from the table. It is chiefly in the winter and early spring that he thus seeks to supplement the fare furnished him by the trees, bushes, and weeds. In these visits to the back-yard he is almost as familiar as the little chipping sparrow.

Though the downy woodpecker is somewhat of a Bohemian in his disposition to roam over the neighborhood, he likes to have a place he can call home. Along in the fall he inspects many inviting sites for a winter habitation, and finally picks out a location suitable to his needs. He prefers the underside of an oblique branch slightly decayed, or a medium sized stump somewhat intenerated, and he employs a part of his leisure time in excavating a shelter from the keen blasts of winter. He first breaks open an irregular entrance about an inch and a half in diameter, and then he bores into the wood for two inches or more, through the softer wood between the bark and the heart-wood. He is wise in his method of labor-saving, however, for experience has probably taught him that by directing his course obliquely he can keep working in the softer wood; hence he almost invariably veers to right or left instead of turning directly downward into the harder wood in the center of the branch. Many excavations I have examined were thus formed by following the layers of softer wood just beneath the bark or the sap-wood. He seldom goes more than seven inches deep, gradually enlarging his bedroom as he descends, until it averages less than four inches long by three inches wide.

When the severe weather comes from the cold northwest, and the driving snow and sleet advise the little downy that he must have comfortable quarters for the night, he slips into his snug winter bed and sleeps sheltered from the bitter blasts.

With the opening of spring the downy woodpeckers become more settled in their ways and are seldom seen in the towns, retiring into the woods and secluded groves to rear their broods. Usually they have suitable homes already prepared; but if the females have decided preferences of their own, and desire to live in new habitations of their own architecture, the construction of a new cavity is not a difficult matter for such skillful builders. They work by turns at the excavation, the male hammering for ten or fifteen minutes, and then sweeping away into the woods to seek the female, who comes immediately to relieve her mate. A few moments may be spent in gallantry and caresses, and then the second labors in turn, while the other flies away for luncheon and refreshment. The work on the new cavities is commenced about the middle of April, and complements of eggs are found from the first to the middle of May. The site of the nest is not often above twenty feet, and seldom less than ten feet from the ground. There are usually five, sometimes only four, and rarely six eggs in the complement. Like the eggs of all the woodpeckers, they are crystal white, averaging .75 by .60 of an inch. The woodpeckers make no nests in the cavities they use, but deposit their eggs on the bare wood or on the fine chips in the bottom of the recess.

As becomes a personage of his activity and intelligence, the downy woodpecker sets a bountiful and well assorted table. In the spring and early summer he dines chiefly on fresh meat, selected with his own careful and nice discrimination. In the late summer and fall he partakes of the small fruits growing wild throughout his domains; however, he has never been accused of entering the premises of his neighbors in search of dessert. He frequently breakfasts with the red-headed woodpecker, towhee, robin, and catbird, in their wild cherry trees and grapevines, and with the flicker he dines on the berries

of the Virginia creeper, poison ivy, and other plants of the woods. Later he sups with the sparrows among the sumachs and ironweeds, and in mid-winter he gleans the crumbs and fragments found near the kitchen door. In fact, he neglects no opportunity to add a nice tid-bit to his ordinary fare, whether he finds it among the lower branches of a tree, on the trunk, among the bushes and weedtops, or on the ground. He is said to be instrumental in scattering the seeds of the poison ivy, with the bluebird, flicker, crow, and other species; but any harm he thus does unconsciously can be overlooked when we reflect that he is only slightly increasing his own food supply, and hence perhaps increasing the abundance of his species in the future. Investigations of the food of the common woodpeckers have placed our little friend at the head of the list for beneficial qualities, and were he not so unjustly and absurdly styled a "sap-sucker," his reputation would be without a blemish; but tradition should no longer mar the reputation of one who is worthy. Intelligent observation is rapidly clearing the names of our friends from every unjust imputation, and in future their true characters should be subjects of common knowledge.

VII.—BIRDS OF BEAK AND TALON.

"I know a falcon swift and peerless
As e'er was cradled in the pine;
No bird had ever eye so fearless,
Or wing so strong as this of mine."

—LOWELL.

THERE is a common interest manifested in the manners and movements of the birds of prey. While many of the smaller birds discover qualities which win our friendship and love, we are impelled to respect the evidences of strength and the boldness of character of the larger birds, whose activity and prowess enable them to procure a living in part by the destruction of weaker beings. Few persons can restrain themselves from stopping to watch one of the larger so-called hawks soaring overhead on moveless, expanded pinions, and any of the larger *Raptores* wandering into our range of vision is certain to attract interested notice. In the days of chivalry, our noble ancestors admired the courage and daring of these birds, and the hawks and falcons were reckoned worthy to be the companions of the noblest lords and ladies; hence, we are only revealing hereditary traits when we follow the movements of the falcon dashing with unerring swiftness upon the terror-stricken quarry. Though the practice of falconry passed away with other less noble customs of chivalry, we still admire the traits which made the falcon prized in earlier days. However, limited knowledge of the actual habits of these birds in modern times has infused a degree of popular prejudice against them. The sportsman thinks of the game on which they are reputed to prey, and hence he seldom loses an opportunity to destroy any of the rapacious birds which enter the range of his gun. These birds are well

known to the farmer, who usually considers them as enemies of the poultry, and he seeks to kill them whenever he meets them. Even writers of otherwise undoubted accuracy have disseminated views not supported by sufficient data, and have thus placed the majority of the birds in this group in an unfavorable light. Science has at last investigated the food-habits of the *Raptores* of America, with results so satisfactory that some of the supposed enemies of agriculture are now recognized as active allies. Most of the rapacious birds are of immense utility in the destruction of small noxious rodents and other vermin, and the wise agriculturist should submit to the occasional appropriation of a chicken by an ally which destroys foes of a class beyond the reach of other agencies.

The larger hawks, or true buzzards, which sail lazily over the barn-yard and occasion a panic among the fowls, and which are consequently persecuted by the well-meaning but mistaken farmer, seldom capture a chicken, as their approach is made known by the commotion among the brood, and the fowls have time to run to cover. The smaller hawks, or falcons, are the real enemies and successful raiders of the poultry-yard. They dart swiftly into the yard before their approach is noticed, and snatching up the most promising of the chicks, escape in safety. They are rarely detected, much less caught, while the lazy buzzard, which comes sailing along at that juncture, receives the maledictions of the farmer and his wife. The larger so-called "chicken hawks" are classed either in the beneficial or in the neutral groups by the thorough and systematic investigations of the Department of Agriculture. The guilty parties are the "little chicken hawks," described as Cooper's hawk, the sharp-shinned hawk, and other less common species. The owls have also heretofore been thoughtlessly placed in the category of enemies of agriculture, and have experienced the persecution falling to the lot of the *Raptores*; but the investigation mentioned shows that only the larger owls have a taste for poultry, and that the screech owl, the long-eared owl, and the short-eared owl are valuable auxiliaries of the farmer in the destruction of noxious insects and vermin.

GREAT HORNED OWL.

The study of the birds of this interesting group should be begun in the late winter, when the mournful "tull-ull-loo" of the screech owl is heard in the apple tree near our kitchen door, and the "who-who-hoo-hoo" of the horned owl is wafted to the ears of the residents of the wooded regions. With the rapid clearing of the forests from the borders of the smaller water-courses of this section, the great horned owls have ceased to be abundant, and in this locality are met only occasionally. I know of only one pair dwelling at present in my home township. Their home is in a thirty-acre tract of timber bordering a shallow creek, and they are so harassed by hunters and crows that life is surely a burden to them. However, food is abundant, for the tract still harbors squirrels and other vermin, and therefore I suppose they are content to remain.

While tramping over this wooded tract one fall, I daily startled one or both of these owls from their morning naps. They see well in the daytime, and do not seem inconvenienced by the light, though their movements among the trees are rather uncertain. If they are pursued, a bare limb above the middle point of a large tree generally attracts them for a new perch, and the lowest point of their flight is reached just before alighting. When quiet again prevails, they seek a retreat either in a hollow tree or among the branches of a bushy tree, the latter being commonly preferred. As night approaches, they leave their resting-places and fly forth with strong flight in wide circles over the treetops, shrinking from no enemy, and fearlessly manifesting their powerful rapacious natures.

For birds which are popularly supposed to doze during the day, these owls are remarkably wakeful and wary. It was a difficult matter to surprise either of this surviving pair of owls, and seldom could I approach within easy observation of them. The moment one was flushed, a noisy pack of crows would start in hot pursuit. When the owl alighted the crows would perch on all sides



GREAT HORNED OWL.

From life. Copyright, 1892, by H. W. Minns.

of him, some occasionally flying quite close and making a feint, to all which demonstrations the owl was supremely indifferent. Any movement on his part would evoke a fresh torrent of cries and abuse from the crows. At length, having exhausted the corvine vocabulary of epithets and scurrility, and being tired of deriding that which, like Diogenes, would not be derided, one by one the crows would abandon the siege and seek less stoical victims, or less monotonous amusement. Whenever I entered the woods, if I failed to flush one of the owls myself, I seldom failed to discover his particular quarters by the outcries and demonstrations of the crows. I frequently wished that the victim might for once so far forget his dignity as to lose his temper and pounce upon one of his tormentors, that I might witness the hasty scrambling of the insolent crowd to a safe distance. But the owl is long-suffering, and therefore a notable pattern of patient endurance in persecution.

Along in January the amorous inclinations of the male are expressed in the more frequent deep bass notes it utters as the short winter afternoons begin to wane. Out from the dusk of the forest resounds its "who,—, who, who," in heavy tones. The space between the first and second notes of its call represents a rest, and the last two notes are uttered in quicker time. Frequently there is but one note, a deep, deliberate hoot, while at other times there are two hoots pronounced evenly and slowly. Usually, however, when there are more than two notes, the last two are enunciated in less time than is given to the same number of preceding ones.

This owl leads the season in its nidification. It chooses either a suitable cavity in a hollow tree in heavy timber, lowland woods being preferred, or a nest used in preceding years either by hawks or crows. In the latter case the two or three eggs are usually deposited on the bare twigs in the slight depression. Sometimes, however, the old nest is furnished with a lining of dead leaves, moss, and feathers. February and March are the months for depositing and incubating the eggs. The pair mentioned in the opening of this sketch selected a hawk's nest of the preceding season, situated thirty-five feet from the ground

in a hickory tree, and two eggs were laid by February 24th. In the *Oologist* for March, 1893, Charles R. Keyes, of Mt. Vernon, Iowa, furnishes a record of sets found in 1892, as follows: February 13th, three fresh eggs; February 20th, two fresh eggs; February 29th, two eggs, incubation far advanced; March 1st, two sets of two eggs each, slightly incubated. Of these six nests, five were in old nests of hawks and crows, and one was in a hollow in a dead oak. The height of the nest above the ground varies from thirty to ninety feet. The eggs are white, and ellipsoidal in shape, averaging 2.18 inches in length by 1.80 inches in width.

The rapacity of this powerful nocturnal marauder makes its presence most undesirable in any neighborhood. It is a famous raider of open chicken roosts near its haunts, and its midnight forays often strike with consternation the good housewife when she beholds the remains of her slaughtered brood on some fateful morning. Hares and rabbits, squirrels, partridges, smaller birds, mice, frogs, and moles, with other delicacies, all find their way into the larder of this robber baron. Should he espy a mink, weasel, raccoon, or skunk engaged like himself in a nocturnal foray, he is not withheld by the reputed "honor among thieves" from seizing the prey and tucking it away in his game-bag as a luncheon for Mrs. Bubo and her offspring. Fragments and bones of all the above animals have been noted about the home of this owl, indicating its general preferences in its regular bill of fare.

The habitat of the great horned owl is all of North America east of the great plains. It prefers the denser woods and the old growths of the undisturbed forests, and becomes so attached to any neighborhood that it will remain for years even when the nest is annually harried. In *Ornithologist and Oologist* for September, 1883, F. H. Carpenter records his finding a set of eggs annually for eleven years in the same nest; but the woodsman's axe finally destroyed the home of the owls.



YOUNG RED-TAILED HAWKS.

From life. Copyright, 1892, by H. W. Minns.

RED-TAILED HAWK.

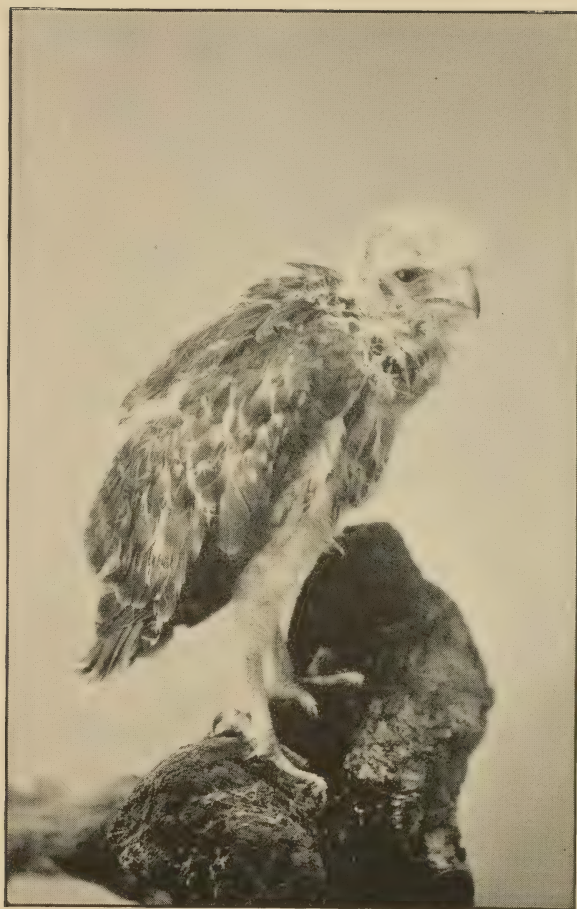
None of the hawks has suffered more undeserved persecution than has the red-tailed buzzard or hawk, whose characteristics place it among the ignoble falcons, or hawks, of feudal times. Lacking the swiftness and impetuosity of attack peculiar to the true falcons, it depends on its ability to surprise its prey and drop upon it when unable to escape. Its robust frame, dignified carriage, and power of sustained flight, render it little inferior to the lordly eagle himself, except in size and strength. Indeed, in refinement of manner and in general habits, it is far more worthy to symbolize our republic than the piratical and indiscriminating eagle. Being a permanent resident, it is at all times to be found in suitable localities. It is the winter hawk of this section. How happily has it been entitled *borealis*! When the boreal breath has overspread the face of nature with snow and ice, this buzzard hawk of the north demonstrates its right to its specific title by floating calmly in the upper height, or sitting unaffected by the searching wind. The coldest days of January serve to give this hawk a keener eye and a deeper zest for the chase. On a sharp morning in winter, when the mercury was standing at twenty degrees below zero, I saw a noble individual of this species sitting motionless in the top of a solitary cottonwood in the middle of a snow-covered pasture, quietly surveying the subjacent fields for venturesome rabbits and quail. Through the winter its attachment to particular trees is noticeable, and in these trees it can usually be seen when it is not sailing above the tree-tops and fields in wide circles. As a usual thing it does not sit in the summit of a tree, but generally chooses a perch in one side the tree about two-thirds the height of the branching portion, always, however, in a favorable position to view its surroundings.

On the genial days of early spring these hawks attract special attention, the greater activity of their usual quarry inducing them to discover more boldness and familiarity. The individuals which have migrated further south for the winter are then returning and supplement

the numbers of the permanent residents. Their shrill cries, which can be represented by the syllables "kee-oo," are then heard ringing over the woods as the birds flap from their perches and begin to mount in their skyward spirals. When they careen like a ship caught by the wind, the bright chestnut of the upper side of the tail shows to advantage and serves to distinguish them from their congeners.

In the late winter or early spring the shocks of corn that have been left standing in the fields are removed to clear the ground for the new crop. If there is a high tree or other suitable perch in the field, one or more of these hawks can often be seen waiting for the uncovering of the mice hidden in the shocks. Regardless of the farmer's proximity, they will frequently sail down and capture a luckless mouse, returning to their perch to await the uncovering of another victim. It is characteristic of the hawks to lose much of their usual wariness when they are in pursuit of their prey, and on such occasions they often unwittingly enter the range of the collector's gun, thus forfeiting their lives for their rapacity. Though they are more or less common in all wooded regions of North America, they are wary in eluding human enemies, usually leaving their perch and soaring high, far beyond gunshot, at the appearance of suspected persons. In the less thickly settled regions of the far west they are said to show less wariness and to evince more of curiosity than of suspicion at the approach of man.

At all seasons these hawks are harassed by the crows, from whom they escape by mounting in the air in irregular spirals to heights where the ignoble crows become dizzy and decline to follow. They make no other efforts to elude or repel the assaults of their tormentors, though in ordinary altitudes one or more of the crows will frequently rise above them and keep striking them. I once watched a single crow attack one of these hawks, and as the hawk arose the crow, which had already gained the upper air, easily kept the advantage by mounting in the same manner, striking the hawk at every turn. I began to admire the courage and persistency of the crow, when his spirit apparently failed him, and abandoning the bat-



YOUNG RED-TAILED HAWK.

From life. Copyright, 1892, by H. W. Minns.

tle, he quickly descended in an oblique line. Is it not strange that the larger hawks and owls will submit to be harassed by such arrant cowards as the crows? They appear simply to ignore their assailants, and to rise above such petty annoyances with quiet dignity, disdaining to strike a blow in return, whereas a single demonstration would cause their enemies to turn tail and hurry out of harm's way.

The red-tailed hawk can commonly be seen perched in the higher trees along the borders of wooded slopes and woods-pastures, usually within reach of creeks or ponds, from whose margins it can pick up an occasional frog or snake. Woods bordering fields and meadows, from which it can procure gophers, moles, and mice, on which it chiefly feeds, are favorite resorts, and in the woods it finds squirrels and other rodents, as well as the birds which it only occasionally surprises and captures. Its slow, steady flight prevents it from pursuing and capturing smaller birds on the wing. When taking its prey from the ground, it often hovers over the intended quarry for a moment with beating wings and extended feet, its body being nearly vertical. It seldom visits the barnyard to prey upon the poultry, but it will pick up a stray fowl which it meets away from its yard and unable to find cover. However, hunger sometimes impels this hawk to show much boldness in seeking to replenish its larder.

As young rabbits and squirrels are just beginning to shift for themselves when the young red-tails are more pressing in their demands for food, they are the usual prey of the red-tailed hawks at this season. In his "Birds of Kansas," Colonel Goss states that when soaring at high altitudes in the warmer summer days, these hawks will fill their craws with grasshoppers likewise flying high in the air. They seldom eat what they have not themselves captured and killed, though Mr. George P. Elliott, in an article on the red-tailed hawk in *Ornithologist and Oologist*, Vol. xi., page 35, tells of a pair feeding on the carcass of an animal captured in a farmer's trap, the birds themselves being taken later by this bait in the trap. The same person, describing their method of capturing squirrels, says: "When two of the birds are hunting together,

as is frequently the case, the usual mode of capture is that one of the hawks will drive the squirrel around the tree while the other bird poises to seize it as it dodges around to avoid the first hawk."

This hawk breeds earlier than any other. Nidification begins some time after the middle of February, generally about the first of March. The eggs are usually deposited in the latter half of March in this section. In New England the time of nesting is somewhat later. Its nest is commonly placed in one of the highest trees in the locality it frequents, and the refurnishing of an old structure of former years is preferable to the labor of building a new home. When no old nest is at hand in a suitable site, it makes a nest of coarse twigs and sticks, mingling with these materials dried grass, leaves, moss, corn-husks, and a few feathers. The cavity is generally less than two inches deep and ten or eleven inches across, though the nest is quite bulky, and if reoccupied for successive seasons, it generally becomes somewhat enlarged each year by the addition of similar materials. One season I found a nest that was lined with cottonwood bark, and the next year the same nest was extensively refurnished with oorn-husks. Few birds nest higher in trees than the red-tailed hawk. Robert Ridgway, in "Natural History Survey of Illinois," tells of a nest ninety feet from the ground in a black gum tree in southern Illinois. A set of two eggs was taken on March 21, 1895, from a nest eighty-five feet from the ground in a huge shell-bark hickory. The same season a set of two eggs was found in a nest eighty-six feet from the ground in a giant sycamore, and the next year a set of three eggs was taken from the same nest. In the *Oologist* for November, 1892, Mr. J. Warren Jacobs describes a nest in a shell-bark hickory ninety feet above the ground, and in the same journal of July, 1892, Mr. Albert Garrett says that he has found the nest at various heights ranging between thirty-nine and eighty-six feet, all actually measured. Other observers attest to the high location of the nests of this species, and to the almost inaccessible sites ordinarily chosen.

The eggs are usually two in number, but three are fre-

quently found in the complement. Of 105 sets reported to Mr. F. H. Carpenter as found in New England, 42 were of two eggs each, and 63 were of three eggs each. Colonel Goss states that the eggs in a set number three or four. The eggs also vary greatly in color, from a dull white to bluish-white, or rarely greenish-white ground, variously and irregularly marked with shades of brown, drab, and purple, though most commonly as with weak solutions of these colors. Sometimes the eggs are unmarked.

RED-SHOULDERED HAWK.

This mild-spirited congener of the red-tailed hawk has generally received less notice than its character merits, owing to the similarity of its habits and appearance to those of the fiercer species last sketched. Seen at a distance these two buzzards closely resemble each other, but the red-shouldered hawk is less robust in outline, and consequently seems the smaller, yet it is only a trifle less in length and expanse of wing. In many localities it is more common than the red-tailed hawk, while in other regions apparently as well adapted to its needs, it seems to be less common. Doubtless the two species are often confounded by careless or superficial observers, and one may receive praise or censure deserved by the other. Since the red-tailed buzzard begins its nesting while the trees are yet bare, it generally attracts more attention to its habits than the red-shouldered hawk, which often delays its nidification until the unfolding leaves conceal its operations. It is probable that more individuals of this species migrate from this section in the fall, and that more of the red-tailed hawks remain through the winter, though in the east the red-shouldered hawk is commonly known as the "winter hawk." According to Mr. Thomas McIlwraith, in his "Birds of Ontario," the red-tailed buzzard is resident in that Province, while the red-shouldered buzzard has not been observed during the winter. Colonel Goss, in his "Birds of Kansas," says that both species are resident in that State.

The red-shouldered hawk is partial to the borders of woods and to isolated trees in fields and meadows for its post of observation, and in such situations it can often be seen "waiting for something to turn up." In thickly settled regions it has learned to be wary and to eye with suspicion the approaching lords of creation, though in the thicker woods it frequently alights within reach of favorable observation when unaware of one's presence. This hawk is more noisy than the red-tail, having a similar cry, but often repeating it many times at short intervals, especially when harassed by a group of braggart crows. In early spring its cries, uttered as it sails low over the tree tops, vibrate through its wooded quarters, and are regular features of woodland life, always awakening the notice of the lover of birds. These shrill vernal calls are usually the first intimations to the strolling bird-gazer that he has reached the domains of a pair of these birds, and looking upward he sees that

"O'erhead the balanced hen-hawk slides,
Twinned in the river's heaven below."

The blue jays are adepts at imitating these cries, executing them with less force and a greater degree of harshness than the real authors, though their version is enough like the original to deceive the inexperienced ear of the novice. These cries are the love notes of the rough troubadour, and are seldom heard after incubation begins, the silence of this hawk after that time being in marked contrast to its noisy demonstrations during the mating and breeding time. After the young are hatched, however, the cries are again heard, the quarters of a family of old and young birds being readily determined by their cries.

Wooded swamps, groves inhabited by squirrels, and patches of low timber, are regular resorts of the red-shouldered hawk. It is a bountiful provider for the wants of its young. Quoting again from "J. M. W.," Norwich, Conn., we find these statements of interest: "Every one who has climbed to nests of young buteos nearly fledged must have been astonished at the great quantity of these young rodents supplied by the parent birds. In one nest of red-tailed hawks I have seen portions of nine red squirrels,

and from another have counted out on the ground seven entire bodies. A game bird or chicken now and then, but red squirrels for every-day bill-of-fare. Mousing, Master Buteo will go. And frogging, too, for I have several times surprised him in muddy sloughs in the woods, and field collectors often are called to notice the black mud on fresh hawks' eggs. Given then a great food supply, and the species that follow it will be abundant. Over the grove of second growths to the left of Love Lane, last spring, I saw a pair of red-shouldered hawks hovering for days in succession. I knew they were not breeding in the patch, as they had not done so in former years, and there were but three old crows' nests, very low down. But to be very sure, I examined the grove repeatedly with care, and found it to be alive with red squirrels. In one apple-tree hole was a litter of six; in the butt of an oak were five with eyes unopened, and the conspicuous outside nests were many. A barred owl clung to the top of a white birch with one claw, and was tearing away at a squirrel's new domed nest with the other claw. The hawks had their nest with two young in the swamp beyond, and this grove was their handy larder, and very noisy they were over their daily grace before meat."*

Dr. Fisher, whose careful investigations have placed the rapacious birds of America in their true character before the world, says: "The diet of the red-shouldered hawk is probably more varied than that of most other birds of prey. For example, the writer has found in the stomachs of the different individuals which have come under his notice the remains of mammals, birds, snakes, frogs, fishes, insects, centipedes, spiders, crawfish, earth-worms, and snails, which represent eleven classes of animal life. This hawk is very fond of frogs, and although these batrachians are mentioned by Audubon and other writers as forming a very considerable portion of their sustenance, yet mice furnish fully sixty-five per cent. of their food." The last statement should cause the enemies of this hawk to reflect before killing it mercilessly at every opportunity, yet the following paragraph is still more

*Ornithologist and Oologist, Vol. viii., page 17.

positive proof that the species has been most unjustly persecuted. The writer says: "Besides this very injurious group of rodents, other small mammals, such as young squirrels, young rabbits, shrews, and moles, are often taken. Some authors insist that the red-shouldered hawk is destructive to poultry, but the writer in all his field experience has never seen one attack a fowl, nor has he found the remains of one in the stomachs of those examined." Other observers, however, note that this hawk does occasionally prey on stray fowls from the yard, but this item is not of sufficient importance to warrant its popular names of "chicken hawk" and "hen hawk." In "Birds of Kansas," Colonel Goss says of this species on this point that it is quite destructive to domestic fowls raised in or near the timber, but does not appear to search for food far away from its natural resorts.

The red-shouldered hawk is commonly from two to three weeks later in its nidification than the red-tailed species. It seems that in this section the eggs are generally deposited between the first and the middle of April, though there are frequent instances of later nesting. In New England most first sets of eggs are found from the tenth to the twenty-fifth of April.

The basis of the nest is generally the work of crows in preceding years, in which case the nest is usually retouched and a supply of feathers is added. When the hawks are the builders, the nest is made of rough sticks, husks, moss, and strips of bark, lined as the work progresses with feathers from the breast of the female. These feathers are an important index of the progress of affairs in this wildwood home, and they are often found adhering to the bushes in the vicinity of the nest. The buzzard hawks are noted for the attachment they demonstrate to particular nesting sites. They seem to feel that there is no place like home, for they will submit to spoliation year after year and still return to the same site and attempt to rear a brood. Colonel Goss says: "They seem to be greatly attached to the grounds selected for a home, and vigilantly guard the same, not allowing a bird of prey to forage within their claimed limits; they also nest for years in the same tree."

Concerning the size of the nest complement of this species, "J. M. W.," the best authority in America on the breeding habits of the native buzzard-hawks, avers that young females produce sets of three and occasionally four eggs, while the older females deposit only two eggs. In length the eggs vary from 2.28 to 1.92 inches, and in width from 1.80 to 1.29 inches. The eggs vary in color from a pure white ground to bluish-white, marked in almost endless variations with umber, drab, chestnut, russet, and fawn, in clouds, blotches, and streaks, and even small spots. Unmarked eggs of this species are rarer than such eggs of the red-tailed hawk.

The lover of nature who seeks his mistress in her woodland walks can witness to the dignified deportment and good-natured superiority of these forest nobles. As we enter their manorial groves they shrill their bugle calls, and may be seen flapping slowly and heavily over the tops of the forest trees. The first movements of their flight are labored. They flap along for a short distance, and then veering sharply in a small arc, sail in an oblique, upward line, from the impetus of the four or five rapid strokes of their strong pinions. Screaming their notes of anger or exultation, they again flap and sail as before, mounting in a series of oblique arcs, seeming to acquire more ease and buoyancy as they ascend, until they are borne on unmoving wings along the circumferences of still expanding circles. There they float in the tranquil heights, drifting farther and farther from the neighborhood. Who that loves freedom and respects unassuming power can desist from gazing after them with interest and even admiration? Truly they are representatives of the feudal times when might, not right, held sway. Or shall we say that it is might with right that characterizes their woodland rule?

AMERICAN OSPREY.

Those persons who live far inland, or beyond the vicinity of the great lakes and larger rivers, and who have never visited the resorts of the osprey, may have little interest in its habits. However, it is scarcely inferior to the eagles in the attributes of nobility. It is frequently styled the fish eagle, and the title is not inappropriate, for it possesses many noble instincts. In strength, powers of flight, and food habits, it is worthy a position among its more pretentious relatives. Unlike the eagles, the osprey is regularly migratory, and as the herald of the fishing season and the period of activity and consequent plenty to the toilers with net and seine, the annual return of the osprey is eagerly watched. Of its regularity in migration, the great ornithologist and poet, Alexander Wilson, speaks in this couplet:

“True to the season, o’er our sea-beat shore
The sailing osprey high is seen to soar.”

In truth, few other rapacious birds discover so many agreeable and excellent traits, and we do not wonder that the osprey is held in high esteem by the fishermen and farmers of the Atlantic seaboard and other localities where it is commonly found.

The osprey is distributed throughout nearly all the temperate regions of the world, and persons who frequent the seashore, both in the Old and the New World, learn to associate the form and flight of the species with other sights of the seaboard. Its familiarity admits of a satisfactory study of its appearance and manners. A prominent characteristic is the large development of the feet and claws—surely a wonderful adaptation to its food-habits, as the bird can exert a strong grasp on its slippery prey and thus hold it securely in flight. Other noticeable features are the firmness of the plumage and the unusually close connection of the overlapping feathers, which are kept well oiled. In fact, the covering of this hardy fisher is just such a diving-suit as the bird needs for the frequent plunges it makes in pursuit of its food, amply

protecting its body from contact with the water. In appearance it somewhat resembles the bald eagle, for its head and neck are white, as well as its under parts, though it lacks the white tail of the eagle. Instead of the flowing plumage found on the flanks of the eagles and larger hawks, the osprey has the tibiae closely feathered—another adaptation to its piscivorous habits, for the feathery “flags” would absorb water and thus hinder the upward movement of the bird laden with its prey.

The social disposition of the ospreys is in marked contrast to the more reserved life of the eagles. Even in their migration they discover their love of company. When the first arrival of the season is descried soaring far up in the sky, usually others can be seen circling in the neighborhood, and the flute-like call of the first is repeated by others within hearing. They seem to time their arrival at any given point with the appearance of the large shoals of fishes, which constitute their chief food, and which apprise the fishermen that their vocation must be resumed after the months of enforced idleness. In “*Our Birds in Their Haunts*,” Mr. Langille says that their vernal and autumnal migrations along the middle districts of the Atlantic seem singularly coincident with the equinoxes, as they arrive about the twenty-first of March and depart about the twenty-third of September. In “*Birds of Ontario*,” Thomas McIlwraith thus writes concerning their migrations: “The fish hawks arrive in Ontario as soon as the ice breaks up in the spring, and are soon distributed over the country. Here and there in Ontario and elsewhere, a pair will settle and remain for the summer, but many of them do not slack in their northern flight till they are within the arctic circle, where they rear their young on the banks of the clear streams of the interior, and along the Yukon River in Alaska. Only one brood is raised in the season, and in the fall they again work their way south, calling at many intermediate stations. In southern Ontario they are seen during October, but continue their southern route by easy stages, till many of them reach the West Indies and northern South America, where they soon again prepare for the spring trip.” They are recorded as “rather rare”

in "Birds of Michigan." They probably are not often seen in Illinois, except along the Mississippi, the Ohio, and the region bordering Lake Michigan, when not on migration, though in the locality last mentioned they are not uncommon.

The osprey lives almost exclusively on fish, and for this reason it has been placed (by the investigations of the United States Department of Agriculture) in the class of those rapacious birds whose habits are more harmful than beneficial. Its movements, when scanning the water below for its prey, are very similar to those of the sparrow hawk. Frequently it arrests its flight above a particular spot or floating object, and maintaining its position by steadily flapping its wings, remains stationary for a few moments before it resumes its flight or plunges boldly into the water for the fish it has perceived. At times it sails with almost motionless pinions, the unusually large extent and the noticeable curvature of the wings being characteristic features which aid in its identification and which suggest its wonderful powers of flight. Often while thus soaring the osprey dashes down almost to the water, and when about to touch it, glides along the surface, or turns upwards as abruptly as it descended, sometimes wheeling about in circles of no larger diameter than its own expanded pinions will compass. Its perpendicular descents from great heights, dropping as it does and submerging itself for several seconds, accompanied by a strong roaring sound and a tremendous splashing of the water and spray, are most thrilling sights, which can not fail to excite respect for this remarkable bird. It is not always successful in its attempts, however, and frequently it will make many plunges into the waves before it seizes a victim, which it invariably captures with its talons and carries with the head foremost.

After the expenditure of so much energy and the manifestation of so much perseverance, it seems that the persistent fisher should be allowed to enjoy the proceeds of its toil without molestation. However, sometimes the osprey has scarcely emerged from the cloud of spray and shaken the water from its oily plumage, ere the bald eagle is in determined pursuit. Though the osprey is much

swifter in flight than the eagle, it foolishly attempts to escape by rising with its burden. Its pursuer, unencumbered and fresh for the chase, screams its challenge and wheels ever nearer in narrowing circles, its unmoving pinions presenting a marked contrast to the rapidly flapping wings of the despairing osprey. At the last moment, when the victorious eagle is about to strike the vanquished osprey from above, the latter relinquishes its prey with a wild cry of anger, and the thrilling performance has ended, unless the eagle swoops in the path of the swiftly falling fish and attempts to take it for his own use. The osprey never seems to think of retaking it, even when it falls on the ground where it can be easily recovered.

Where the circumstances are favorable, the ospreys nest in colonies. Along the Atlantic seaboard there are many colonies containing from fifty to two hundred nests. The nests are made of coarse sticks, and are used from year to year, if not destroyed, growing larger each year by the addition of new materials, until sometimes the nests are five or six feet in height and nearly as wide. Some observers report that when a new nest is to be made in a colony many birds sometimes participate in the effort, and apparently enjoy an old-fashioned "bee," or "raising." At such times the birds perform wonderful aerial evolutions. It is not an unusual thing to see one of the birds drop the stick he is carrying, with no other apparent purpose than to exhibit his dexterity in swooping down and catching it in air, which is done with the same ease with which the schoolboy tosses up a stick and catches it as it turns. I have seen the tree swallow, whose nest had been harried, sweep around the neighborhood and catch the floating fragments of her home in her mouth, when the feathers of which her domicile had been composed were floating on the air, but such evolutions in the movements of the larger rapacious birds are unusually interesting. At times the osprey evinces its pleasure in lofty aerial manœuvres by pausing in its easy onward sailing, and mounting upward for several yards by strong flappings of its wings, pitching forward with motionless pinions and quickly descending to its former level, staying its downward progress by sud-

denly expanding its wings and gently inclining its body upward.

The nest of the osprey possesses little external beauty. The mass of sticks, twigs, and various sorts of rubbish is piled together with a view to service and durability. The structure is lined with twigs, grass, bark, sea-weed, corn-stalks, and other available materials. The owners frequently repair their home in the fall, that the structure may more readily withstand the blasts of winter, though the work of repairing is done principally in the spring. No particular sort of tree is favored for sites, but the great desideratum is safety, and to this end the height of the nest from the ground varies from low situations to eighty and ninety feet. Sometimes in localities where the birds are not disturbed the nests are placed on the ground, and in swampy regions they are situated on low bushes as well as in the highest and most inaccessible positions. Nests in the woods are generally situated nearer the ground than nests in open localities, the birds having evidently learned that their homes in open sites attract more attention and are more likely to be disturbed than nests in swamps and woods.

Sometimes the birds become so familiar that they make their habitations on the chimneys of rural residences, and an instance is recorded of a nest on the cross-piece of a telegraph pole. Some farmers are not unwilling to have these birds nest on their premises, and others even resent the molestation of the nests, though they may destroy the habitations of other rapacious birds. They regard the ospreys as their friends, for occasionally the birds pick up small snakes and vermin about the farm, and are perfectly harmless and friendly to other birds and the poultry.

It is no easy undertaking to get into a nest of the osprey, even after the site has been reached, for the spreading border of the mass juts so far over its base that care, dexterity, and judgment are essential qualifications of the successful climber. The trees containing the nests are generally dead, or die more quickly after they are chosen as sites, for the salt water soaked into the materials hastens the death of the trees, and also causes the rapid disintegration of the foundation. The usual complement

consists of three eggs, rarely of four eggs, and sometimes there are only two eggs in the set. The ground-color of the eggs varies from brownish-yellow to creamy-white, and they are irregularly spotted and blotched with reddish-brown and umber. Most of the eggs have the markings so thickly crowded at the larger end that the ground-color is entirely obscured, and there is great diversity of marking in the eggs of any set as well as in a large series of specimens. The eggs average 2.40 inches in length by 1.75 in width.

The kind disposition and good nature of the ospreys are manifested by the fact that they allow the grackles and other smaller birds to nest in the cavities of their homes. Davie tells of a nest from which a collector took a set of these eggs, and in a cavity between the sticks he found a nest of the purple grackle containing five eggs, while in a lower portion was a hollow branch containing a set of seven eggs of the tree swallow. Frequently, when several pairs of ospreys live as neighbors, they first unite their forces and drive the bald eagle from the vicinity, if one is lingering in the locality to take advantage of the industry and perseverance of the fish hawks. If they are successful in driving away their common enemy, they are free to enjoy the fruits of their own labors. Where the ospreys are not so abundant, they live in solitary pairs, commonly selecting the most inaccessible site in the locality, one which will give them a commanding view of the subjacent region. There they will dwell for many seasons, if they are not persecuted. The young are very slow to leave the nest, and they depend on the parent birds for support long after they have learned to fly. It is not uncommon to see the parents feeding the young birds while the latter are sailing about on wings which they have learned to use with almost the freedom of their elders.

Among the rapacious birds it is usual for the female to exceed the male in size, but the male of the osprey is somewhat larger than the female. He is a most attentive provider for his mate while she is brooding her eggs, and his regular excursions to the water and his return with the prey are ordinary occurrences to residents of the

adjoining regions. It is not commonly known that the osprey ever feeds on anything else but fish, but Mr. F. W. Andros, a careful observer and an accurate writer, asserts that it hunts over the pastures for field mice, frogs, toads, and snakes.*

BALD EAGLE.

No bird has been the subject of more improbable stories or has been more frequently misrepresented in accounts of its habits than the ill-chosen emblem of our national genius, the white-headed eagle. In many of its traits it is scarcely more noble than the vultures; in others it discovers a true nobility of nature and exhibits great daring and unfaltering courage. We often read of the eagle as holding some inaccessible shelf on a perpendicular cliff, from which it sallies forth to seize any child neglected by its mother or companions. The real fact is, however, that while the bald eagle is generally found in mountainous regions, and in rare instances attacks small children and even men, when impelled by fierce hunger, in its general habits it is not much unlike the larger buzzard-hawks, whose sluggish natures and cowardly dispositions are well known. It nests more frequently in trees than in other situations, and its lazy temperament leads it at times to feed on dead fish and game rather than to exert itself in the capture of fresh game. Frequently, however, it is the embodiment of lordly pride and regal power. Then it is the real "bird of Jove," falling upon the flocks of water-fowls which have failed to keep the upper air, and sweeping away with its victim with irresistible impetuosity. In fact, its habits show the extremes of energy and indolence, of noble instinct and depraved tastes. It is not improbable that the birds of mountainous regions discover traits more in keeping with the royal attributes ascribed to the eagle, the greater struggle for existence in the wilder localities conducing to render the individuals in mountain strongholds fiercer and bolder than the birds of the prairies.

*Ornithologist and Oologist, September, 1886.

It is not generally known, except to naturalists, that there are only two species of eagle which belong to the avi-fauna of North America, with the exception of the gray sea eagle of Europe, occasionally resident on the southern coast of Greenland. Our two species are the bald or white-headed eagle and the golden eagle. In their mature plumage the two species need not be confounded, but in the immature plumage of the first two or three years there is a degree of resemblance between them. The golden eagle, however, has the tarsi feathered all round down to the toes, while the bald eagle has the tarsi feathered only in front and on the sides, and not more than half way down to the toes; and this difference serves as a sure means of identification. The common name of bald eagle admits of misconstruction, as the reader might imagine the unfeathered condition of the head found in the vultures. The term white-headed eagle is more consonant with the truth, for in mature plumage the head and neck are pure white, as is the tail. Individuals in their second year have a grayish phase, and are popularly styled gray eagles, but it should be remembered that they are bald eagles in immature dress. The young of the first year are quite dark, and are popularly known as black eagles in some localities, though the golden eagle also is called black eagle by indiscriminating persons, and hence this title is confusing.

To the wide distribution of the white-headed eagle are doubtless due the seemingly contradictory accounts of its habits, as environment has a noticeable effect in modifying the habits of animals, especially when successive generations of the same family breed in the same locality. The bald eagle is equally at home on the banks of the Arctic rivers and the rivers of the Gulf, and it thrives as well on the barren cliffs of Labrador as the sunny shores of Florida and Texas. It is seen oftenest along the seashore, and along the great lakes, as well as near the larger rivers and water-courses. Near the waters of the bottom lakes of this section the bald eagle can frequently be seen sitting or flying, doubtless allured thither in part by the quantities of dead fish annually left by the destructive freshets. At that season the swamp-lakes harbor flocks of migrat-

ing water-fowl, and as the lakes are usually surrounded by a dense growth of timber, the eagle can capture its prey with comparative ease. When food is thus abundant and can be procured with little endeavor, the eagle gives way to a spirit of lazy contentment, seldom making those lofty aerial flights which have given it a reputation synonymous with unresting aspiration. Here it flies low and goes only a short distance at one time, except when frequently shot at by misguided hunters. Then it mounts in the circling, soaring flight common to the larger hawks, and ascending until it strains our power of sight to follow its course, floats for hours in the distant blue depths, forgetful of the petty annoyances of earth, and giving us a more exalted idea of its resources and strength. In such moods it is a worthy symbol of our nation, and proudly confirms its right to the title of "Bird of Washington," given to it by Audubon on first meeting an individual in the gray plumage and supposing it to be a new species.

Though the bald eagle is so widely distributed over North America, and resident throughout the year wherever found, there are many localities where it seldom or never nests; and there its appearance is noted only when it makes its longer excursions from the neighborhood of its eyrie. It does not usually nest far away from the sea, lakes, or rivers, as its dependence upon fish for its chief food supply leads it to establish its home within easy reach of well-stocked waters. It is a persistent parasite of the osprey. The fact that the eagle frequently despoils the fish hawk of its hard-earned prey is well known to all who have read careful accounts of the two species, or who have extensively observed the habits of either. The eagle does not always seem to be impelled solely by hunger when it launches forth in pursuit of the osprey, laden with its recently captured prey. Sometimes the motive is apparently a spirit of wanton cruelty and malicious pleasure; for frequently, when it has caused the defeated and despairing fish hawk to drop its burden, the eagle will make no effort to secure the morsel for its own use, merely turning away from the chase with the air of a gunner who has killed a bird which he disdains to place in his gamebag. Often, however, the eagle will swoop

downward in pursuit of the fish falling through the air, and the meteor-like descent of the eagle on such occasions is a sight never to be forgotten by the beholder.

The most of the recorded appearances of the bald eagles in this section are for the fall, winter, and spring. The dry prairie regions do not seem to offer them the proper inducements for continuous residence. It is probable that the individuals of the species killed or seen in sections are stragglers, pursuing the migrating water-fowl from their more permanent homes. Close observation may show that the bald eagles in some neighborhoods migrate as the crows do. While there are birds seen in certain localities at all seasons, it may be the case that the summer residents remove farther south or to other localities after the breeding season, and that other individuals come in to occupy the ground thus vacated. However, in most cases the same birds are known to remain throughout the year near their breeding places.

This eagle seems to be more abundant in Florida and the southeastern coast of the United States than elsewhere. Mr. Maynard says that to study the bald eagle in its abundance, one must visit Florida, where there are more nests in a given area than in any other section, and that he has found several times three or four eyries, all occupied, within the radius of a mile. *Ornithologist and Oologist* for May, 1889, contains information about a series of twenty-six sets, amounting to forty-seven eggs of the bald eagle, collected in the Indian River region of Florida in two seasons. The earliest date given is November 25th; another set was taken November 30th; eighteen sets were taken in December; four in January, and the remainder in February. The dates are given to show the early nesting of the bald eagle in its southern resorts. All of the above nests were situated in pine trees, at various heights not exceeding eighty-six feet. Thirteen of the nests were less than sixty feet from the ground. Thus the real facts do not bear out the assertions so frequently seen that the eagle chooses a wild and inaccessible site for its nest. However, there are notable instances of such a choice.

In the northern portions of its habitat the bald eagle nests in March and April. When a new nest is to be

made, the female is the chief architect and the principal laborer, though the male assists by fetching a part of the sticks, the female disposing them in the pile to please her fancy. The chief material of the nest is coarse sticks, the inner parts consisting of twigs and grasses. There is no small amount of trash worked into the mass, which is from four to six feet across and several feet high. Often the same nest is used year after year, and as a small amount of new material is added each season, the structure sometimes reaches to a height of six feet or more, and often amounts to a respectable cartload. The eggs are two, rarely three, and they are white or dingy-white, measuring in length from 2.98 to 2.45, and in width from 2.25 to 1.95, in inches.

The eagles are valiant in defending their homes against the depredations of other birds, quadrupeds, and reptiles. However, they show none of the courage imputed to them when the human despoiler plunders their eyries, and at such times they do not appear to have much concern in the fate of their homes. At times they fly about the spot, uttering a harsh, screaming cry. At other times they sit in a convenient tree within sight, and apparently unmoved, they watch the actions of the visitor, being careful to keep out of range of any weapons the intruder may carry. Mr. Maynard says: "When the nest is approached, the parent eagles do not exhibit any great degree of solicitude, merely flying about at long rifle range, and uttering a harsh, cackling note. They have a singular habit of dropping at such times when shot at and uninjured, just as if they had been hit, and I have seen a female turn over several times, almost exactly like a tumbler pigeon. The males are particularly shy; in fact, they will often leave the vicinity when they perceive an intruder."

The food habits of the bald eagle have been referred to. While it looks to the osprey for a part of its supply of fish, the eagle is itself an expert in catching its favorite food. It does not make grand plunges from great heights like the osprey, but it submerges itself with ease and rarely fails to seize the desired prey. The coots and gallinules, or mudhens, of the swamps become toothsome delicacies for it when it can not procure fish, and all kinds of water-

fowl appear in its bill-of-fare in their season. Swans, geese, and ducks are taken on the wing with astonishing ease by the eagle, which mounts above them and strikes them with its powerful talons. The victims fall to earth, whence they are picked up and eaten when hunger impels the successful forayer. The agriculturist should recognize its services in the destruction of harmful rodents, though he is often called to mourn the loss of unprotected lambs, pigs, and poultry. Satisfactory investigation has proved that the harmful and beneficial habits of the bald eagle balance each other. It is both friend and foe to human interests, judged by the standard of utility. From the bird-lover's point of view, however, its value is not comparable to mere pigs and poultry. Has not some one suggested that one genius is worth a generation of mediocre minds?

SPARROW HAWK.

There are incidents in the lives of all persons which are of such interest that they are not easily forgotten. Such an incident was the capture of the first and only sparrow hawk I ever killed. I had lately obtained possession of a small gun, and with it I became a regular rambler over the accessible territory near my home, acquiring some of my best lessons in ornithology. One bright morning, while I was walking along a railroad through the woods, a handsome, strange bird, which I mentally classed as a species of hawk, alighted on the telegraph wire near me. It had scarcely snapped its wings into position, however, before it noticed my proximity and arose from its perch, only to fall at the report of my gun. Comparing it with the descriptions in the books, I easily identified it as the sparrow hawk. I have never killed another, for the handsome markings, trim form, and characteristic manners of this little falcon enable its friends to know it on sight without sacrifice of its life. It has the distinction of being the smallest and handsomest of the American falcons. Unlike the other falcon hawks, its reputation is comparatively clear, and lack of persecution for fancied depredations allows it to remain quite common

in localities where the other birds of beak and talon are being rapidly reduced in numbers.

In this section of central Illinois the sparrow hawks are migrants, making their appearance early in March. I have never seen them here in midwinter, but in summer they are rather common. Colonel Goss records them as residents in Kansas. They are said to be distributed over the whole of temperate North America in summer, and in winter to range as far south as northern South America. They are fond of the telegraph wires along the railroads for points of observation for their early resorts, before they settle upon their regular habitations, and thence they make frequent excursions over the bordering fields and meadows in search of the small forms of animal life on which they depend for their ordinary fare.

Their irregular, darting flight is well known to observers, as well as their habit of hovering above a particular spot or over their intended quarry for many moments at a time, beating the air with their wings and yet retaining the same situation in space. After thus hovering above their quarry, they will either swoop down and seize it, or else follow it in its movements a few yards, and then perhaps engage in the same actions before taking their prey, or perhaps they will abandon it and continue their flight. In hovering above their quarry, the sparrow hawks partly support themselves and check their forward motion by the expanded tail, and the head is protruded forward and downward, ready for quick and accurate movement.

"Upon a lofty branch the sparrow hawk may be seen resting or patiently 'waiting for something to turn up,' sitting quietly, in an upright position, sometimes for an hour or more. Should a thoughtless mouse steal incautiously from her nest for a ramble, the quick eye of its watchful enemy detects it. He first dives from his perch and flies directly over the object in view. Should the latter be quiet for a while, the hawk poises itself in mid-air, its fanlike tail widely expanded and its head lowered, waiting for a favorable opportunity to descend upon its intended victim. But the mouse is usually rather restless, running first to one point, then, after a short halt, zigzagging off to another. The hawk, however, follows

every movement, shooting rapidly off and hovering temporarily exactly to correspond with the movements of the unsuspecting mouse."*

Early in April these birds establish themselves in their nesting sites, and the honeymoon is marked by many noisy demonstrations. The flickers alone rival them in amusing movements and noticeable love-notes. In their tender moods they utter a sharp, whining cry, or rather a series of cries, suggestive of trouble and pain, apparently the expression of a bird in distress, readily recognized after it is once connected with the author. Seated by the side of his chosen companion on a bare limb of a favorite tree, the male earnestly solicits her favor, gently sidling closer to her with quivering, partially expanded wings. If she coyly recedes from his ardent advances and flies to another tree, he soon follows on half-beating wings, crying out his piteous assurances of affection. Thus they call attention to their presence and their intended abode in any particular part of the woods or other resort which they choose.

In a cavity of the cupola of the school building where my duties called me for several years a pair of hawks made their summer home, and there I learned to look for them at suitable times. The nest was on a joist between the walls, the entrance being a hole formed by flickers some years before the falcons laid claim to the site. The ringing of the large bell in the cupola was a signal for the appearance of the occupant of the nest, for it seemed to me that the birds never became sufficiently accustomed to the sound to remain on the nest while the bell was ringing. They were exceedingly cautious about entering the cavity while they were being watched to their knowledge. Frequently when I seated myself under an evergreen in the grounds to watch their movements, one or both of the birds would fly above my head at intervals and perch momentarily in the high maples surrounding the yard, watching me suspiciously, but not attempting to enter the nest. During the times at my disposal for observing them I was never able to see either

*Robert Ridgway.

of the birds enter their home, though from the opposite side of the building I often saw them disappear around the cupola, and I knew they had gone within. The sharp calls of the male, returning from an excursion with refreshment for his spouse brooding in the dark cavity, frequently attracted my attention in the nesting time, and he seemed to be a model husband in his faithful care for her wants and his studied devotion to her pleasure.

The regular quarters of these hawks are the dead trees and stubs along the border of woods adjoining open meadows and stumpy pastures. Deserted or unoccupied buildings in similar situations furnish them nooks and cavities for nesting. They are by no means averse to the society of man. Bradford Torrey compares the familiarity of the St. Augustine sparrow hawks to that of village-bred robins in Massachusetts. They are said to make themselves at home occasionally in the holes or lofts for the pigeons, and to live quietly with their neighbors under such circumstances. They seem to be good-natured, doubtless an effect of good living. When seated quietly on a perch they resemble the mourning doves to the superficial observer, though they sit more erect and droop the tail more than the dove. It is amusing to watch the behavior of a dove that has alighted near a sparrow hawk with the expectation of having a quiet tête-à-tête with a companion. The first act of the dove after discovering her mistake is to face away from her neighbor; then she gently moves further away little by little until she seems to be out of the reach of immediate harm, when she betakes herself to hasty flight. At times in their flight, also, the sparrow hawks might be confounded with the doves, both frequently sailing downward in an oblique arc in the same manner, though the hovering of the hawks and the partly closed wings serve clearly to distinguish them.

The flickers and red-headed woodpeckers are the builders of the abodes of the sparrow hawks. Any cavities constructed by them are acceptable homes for the easy-going little falcons. The holes in the gables of country churches, chiseled out by woodpeckers at times when the tapping aided in keeping awake the sleepy rural congregation assembled on the Sabbath mornings of early spring, are

often appropriated by these falcons. Some of them even go so far as to use the holes in banks and cliffs excavated by the kingfishers, though such nesting is unusual.

The sparrow hawks have very limited instincts for building. They seldom make a nest in the ready-made cavity they select, but deposit their eggs on the bare wood or debris at the bottom of the excavation. However, in the recess occupied by the pair inhabiting the cupola of the school building, the eggs were laid on a flat nest of dried grass; but I am unable to assert whether the hawks or previous occupants carried in the material, though it looked like the work of a previous year. It was certainly not the work of the flickers that excavated the entrance, for they are not bred to that sort of thing. I am of the opinion that a pair of these hawks, who occupied the recess in a former season, saw the need of a slight bed at least, as the eggs would roll about on the joist if no nest had been prepared.

The usual nest complement is five eggs, often only four, and rarely six. Their ground color is a shade of white, either buffy or creamy or reddish, variously marked and blotched with shades of brown. They are 1.50 to 1.20 in length, and 1.17 to 1.05 in width, in inches, these dimensions giving them a sub-spherical form. The first sets of eggs are generally deposited in this locality by the 25th of April. My journal records a set of five eggs found in the cavity of the cupola on April 24, 1894, somewhat incubated; a set of five fresh eggs found May 7, 1894, in a natural cavity, twenty-five feet from the ground, in a branch of a live elm; on May 17, 1894, a set of six fresh eggs in a flicker's hole, eighteen feet from the ground, in an isolated dead stub, in a cleared area bordering woods along a creek; and May 9, 1895, a set of five fresh eggs in a deserted cavity made by flickers, sixty feet from the ground, in a branch of a live elm.

Though the sparrow hawks are easily pleased in the choice of their nesting sites, they are in no hurry to begin the cares of a family, even after their future home is selected. They commonly dally about the place for a week or more, after their choice is made, before any eggs are deposited. They spend a good share of their time in the

tree containing the site, from the time their choice is made, and the frequent visits of the male to the tree while the female is brooding serve as a certain index to the location of the home. They use the cavity a great deal in their honeymoon, and their actions seem to indicate that they are then nesting. They are far more noisy before the eggs are deposited than during the period of incubation. They are noisiest about the time they determine upon the site. The noticeable courtship of a pair, and the plaintive cries frequently heard in the vicinity of a suitable cavity, are favorable indications that the site will be used somewhat later.

It is generally understood that this little falcon is not injurious to the interests of agriculture in its food habits, or at least that it more than compensates the farmer for the occasional harm it does. In gleaning most of its living from the fields, it takes small snakes, mice, lizards, moles, grasshoppers, and crickets. Occasionally it seizes small birds, though it seldom makes the effort to take them when the food mentioned is available. In his oft-quoted "Birds of Kansas," Colonel Goss writes of the sparrow hawk concerning this point as follows: "The bird that suffers most, outside of the horned larks and longspurs, is the tree sparrow, as it prefers the hedges and small thickets upon the prairies, instead of the wooded lands, for its sheltered home, its food in all such cases being upon the open lands; and whenever there is any snow upon the ground it drifts against the hedges, and forces the little birds to seek the bare spots, quite a distance away, for the seeds on or fallen from the weeds. Here it is that the hawks successfully get in their work, by darting from a perch and striking the sparrow, either upon the ground or before it can reach its hiding-place." In an experiment made by M. de Lantrie to determine the actual food of this species, and recorded in "Birds of Minnesota," page 203, the experimenter says: "I took five little sparrow hawks and put them in a cage. The parents immediately brought them food, and I was not surprised to see that it consisted of twelve mice, four large lizards, and six mole crickets. A meal of like size was brought every day for a month. At one time there were



YOUNG TURKEY VULTURE.

From life. After Shufeldt

fifteen field mice, two little birds, and a young rabbit. Last year I made the same experiment, with similar results, one meal consisting of twelve small birds, one lark, three moles, and one hedgehog. In one month the five baby hawks rid the world, by actual count, of 420 rats and mice, 200 mole crickets, and 158 lizards." ("Birds of Ontario," by Thomas McIlwraith.)

TURKEY VULTURE.

In the vulturine group of rapacious birds, the turkey vulture, or turkey buzzard, is the most common in this latitude, and indeed it is the only species of the family seen in central and northern Illinois. It is seen oftenest while careening in its strong flight, examining the subjacent fields and woods for its accustomed prey, and hence its characteristics can not be observed in detail by the watcher below. Frequently, however, its voracity in gorging itself with the flesh of some decaying carcass overcomes its ordinary caution in our region, and it admits a near approach, especially when it is in a field or meadow adjoining a road along which the observer is passing. At such times its plumage of the upper parts, which at a distance exhibits a deep black hue, appears to be burnished with a strong violet luster, and on the lower back there are seen deep greenish reflections. The head of the creature, beyond examination while the bird is wheeling overhead in changing circles, possesses characteristics somewhat repulsive, and yet interesting in their illustrations of the wonderful fact of adaptation to special habits of life. Like other birds that feed on putrid flesh and often bury the head in the cavities of carcasses, it has the head and neck unfeathered, and the livid crimson of the naked skin presents a strange contrast to the pure white bill and the dark plumage of the body.

The turkey vulture has an extensive range, it being found in nearly all temperate and tropical North America. Its northward limits extend to southern New England and Ontario, and the States bordering the Great Lakes. The southern borders of its habitat are in Chili and ad-

jacent regions. It is recorded as resident south of the fortieth parallel. In the northern portions of our State the turkey vulture is much less common than in the southern parts, and is there regarded as a rare visitant. In this latitude of $39^{\circ} 20'$, individuals can be observed frequently late in November, if there has been no severe weather; but after the first blast of real winter they are seen no more until the genial weather indicates the advent of spring.

It is in its flight that the turkey vulture is seen to the best advantage. It can soar for hours without observable effort, except occasionally when it has swooped very low in its quest for food, and desires to rise quickly. Then it gives several steady flaps with its strong, sweeping pinions, and, gently inclining its body upward, rises on wide-spread wings, held somewhat above the horizontal position, often careening in the strong breeze like a ship in a gale, but quickly righting itself in the recovery of its balance. When it desires to leave a neighborhood, it ascends gradually in broad circles, which form a huge, inverted, conical spiral, until it reaches a height almost to the limit of human vision, and then it turns its course to please its fancy, steadily floating from old to new regions without apparent effort.

Their wonderful power of flight admits the vultures to forage far and wide from their nesting-places for sustenance for themselves and supplies for their families; and for many minutes, and even hours, they may be seen wheeling and circling over the particular patches of woods that shelter their homes. They are fond of company; and at times when only one individual is within the range of our vision, others will appear in a few minutes; and the bird-gazer will frequently wonder how so many of them can circle into near view in so short a time, as they seem to arrive almost simultaneously—"all at once, and nothing first." Numbers of the gyrating black creatures, all intently scanning the ground, and passing to and fro in their varying circles, present a sight which impresses the beholder with their perfect ease and power in aerial regions. They disappear as mysteriously as they appeared—one perhaps taking the lead in wheeling higher

and farther away, aimlessly sailing in its ever-widening spirals, and the others gradually increasing their distance from the beholder and the earth, until the party of scavengers has become lost to view.

The turkey vulture is quite inoffensive on the ground, and it is even cowardly when cornered. When it is frightened, it has a habit of hissing like a goose defending itself or its nest and family, and it will often stamp its foot like a frightened hare. When it is wounded or pressed closely by its enemy, it will sometimes fall over apparently dead, thus feigning death for many minutes at a time, and frequently repeating the action several times in a limited period. In this peculiar action it either exhibits the crafty nature of the fox and opossum, or else it really succumbs to its emotions of fear. The latter theory is the more probable; for in other instances it does not exhibit the high order of instinct which renders the quadrupeds cited examples of cunning and craftiness.

The habits of the turkey vultures are indeed repulsive, but the traits of their character render them of incalculable benefit as scavengers. As the birds swoop slowly, yet majestically, among the tree-tops, or soar in spiral flight above the prairies and woods, they are ever scanning the area below to detect the uncovered carcasses on which to satisfy their voracity. The discovery of food by one bird is communicated to others in a manner partially mysterious to us, but well understood by its fellows; and in an incredibly short period the other individuals in the locality, and others not in sight when the discovery was made, may be seen wheeling into the neighborhood, and swooping down to the repulsive repast. Like others of the rapacious birds, they have a wonderful capacity for food when the opportunity to gratify their appetite presents itself, and they seldom leave the banquet, if undisturbed, until they are gorged almost to stupefaction. Then they sit around the carcass, indifferent to their surroundings, if the place is retired and they are not likely to be disturbed, and thus they mopishly await the progress of digestion. If the place is not suitable, they retire into the more sheltered and dense woods, and there doze until digestion relieves their gorged condition. Thus are these

birds adapted to their office of removing quickly from the face of nature matter which rapidly decays. It is indicative of wisdom in our legislators that the vultures are protected by law; for this work is peculiar to these birds, and its importance is obvious. It is probable that they do not choose putrid food in preference to fresh carcasses; but their claws and bills are not moved by strong muscles, and hence can not be used in tearing apart the sound flesh of animals recently dead.

It is supposed, by persons who have given little thought to the subject, that the turkey buzzards are guided in their quest for prey chiefly by the sense of smell, which is supposed to be extraordinarily keen. Intelligent observations and scientific investigation, however, thoroughly establishes the fact that the vultures are guided almost solely in their search by their wonderfully penetrating and powerful sight. Indeed, experiments seem to prove that the sense of smell is rather imperfect, being perhaps somewhat blunted by the regular contact with their offensive food. The turkey vultures, except in their acute sight, seem to possess faculties somewhat dull; for they have almost no voice, the only sounds they are known to utter being the feeble hissing mentioned. As they are such able aeronauts, the turkey vultures are veritable "old salts" upon land. They are poorly adapted to terrestrial movements, though they walk well; but they are seen to hop more than walk, and sometimes further their hopping movements by flapping their wings at each hop. Their walk suggests that their joints are stiff, and they droop their heads in a slovenly manner. They rise from the earth with undignified efforts; for, in order to give their body proper momentum, they bow themselves almost to the ground, and then throw their bodies into the air with expanding pinions, flapping hurriedly and strongly several times. Once in the air, however, their carriage becomes easy, graceful, and dignified, their imperfections disappear, and they rank easily with the masters of aerial evolutions.

The turkey vultures begin to nest in this region about the first of May, but sometimes in advanced seasons they deposit the eggs in the latter part of April. Where they

are abundant, as they are in the southern part of our State, they nest in community, but in this section they breed in scattered pairs. In mountainous localities they are said to make their nests in the hollows and recesses of rocky slopes. On the prairies and in the bottom lands they choose the natural cavities of the forest trees, and often deposit their eggs in depressions at the bases of trees or stumps. A branchless trunk of a giant cottonwood, fully fifty feet high and containing a cavity at the top about five feet deep, standing in the formerly dense woods near my home, was regularly used by turkey vultures as a place to rear their young. Fallen logs containing hollows are favorite sites for their homes, as well as retired spots on the ground in thick clumps of bushes.

The turkey vultures do not take the trouble to make a nest, but content themselves with the condition of the site as they find it. Frequently only one egg is laid, and in other instances two are deposited. They are yellowish white or creamy, irregularly spotted, and are marked with shades of brown, and have deeper markings of lilac and purplish drab. They average about 2.75 by 1.85 in inches. Sets of two are recorded as more common than sets of one egg. Their breeding quarters are very offensive from the rank odor peculiar to the birds, and after the young are hatched and require nourishment the place becomes additionally offensive from the half digested, putrid matter disgorged by the parent to feed the young. The newly-hatched young are quite comical in their soft white down, and nothing except their disagreeable odor and repulsive surroundings indicates that they are to become similar to their elders, and perform a part so necessary in the wonderful economy of nature.

The turkey vultures do not confine themselves to carrion in their food, for where they are abundant they are said frequently to seize and eat young pigs and lambs. Dr. Elliott Coues says that one excellent service that the turkey vultures render in warm countries is the destruction of alligators' eggs. The items referred to, however, are only occasional variations from their regular diet, and it is generally accepted that the services rendered by the

vultures are invaluable. While we can not admire the habits of these birds, we should consider their utility. Emerson tells us that "Beauty rests on necessities," and viewed in the light of their place in nature and the necessity for their work, the turkey vultures are not so ignoble and repulsive as they are generally represented, but they are rather servants worthy of our gratitude.

VIII.—RIVER-BANK AND SWAMP- LAKE.

"In Spring they lie one broad expanse of green,
O'er which the light winds run with glimmering feet;
Here, yellower stripes track out the creek unseen,
There, darker growths o'er hidden ditches meet;
And purpler stains show where the blossoms crowd,
As if the silent shadow of a cloud
Hung there becalmed, with the next breath to fleet."
—LOWELL.

THE interested student of bird-life finds few localities which do not furnish him subjects for profitable study and observation. Meadow, woods, and orchard, highway and dooryard, the tangled thicket and the rural hedgerow, all shelter at least a few species worthy the most intimate acquaintance of the lover of nature. The bottom lands near the great rivers and their tributaries are the homes of birds almost unknown to the residents of the wide intervening prairies. The summer homes of the water birds are rarely visited except by sportsmen and enthusiastic naturalists, or by boys who seek to supply the demand for the fragrant lilies which dot the surface of the stagnant water. The certainty of encountering mud and water, and the laborious efforts necessary to push a boat through the tangled reeds and over shallows, or to wade in soft mud among the tall, rank growth, deter many who frequently wish to visit the waterfowl in their breeding resorts. The earnest ornithologist, however, knows that while there are discomforts attending a visit to the swamps, there is ample compensation in the variety of bird-life to be found and studied only under such circumstances. To visit one of these lakes or swamps, bordered with flags growing higher than one's head, and gemmed with snowy lilies expanding over their emerald chalices—to push a skiff

among the reeds and rushes in quest of unfamiliar species—is worth the while of any friend of nature who can find a period of leisure from the routine of life.

There is a characteristic similarity in the appearance of the so-called lakes which occupy the bottom lands bordering all the water-courses of any importance in the Mississippi Valley. These lakes in the drier seasons of the year are merely great swamps, often so dry that the ground is hard and baked, and the rank growth of flags has become browned and blasted by the heat of the summer sun. Generally there is a central area of open water, of more or less extent, stagnant and green with the moss that grows in most of these lakes. Floating on the mossy-green surface are the large round leaves of the lilies, dotted everywhere with the spreading white blossoms in late May and June. Around this spot of open water generally is a zone of green flags, growing in water of varying depth, seldom exceeding two or three feet after the spring rise of the water has subsided. The width of the growth of green flags varies with the slope of the ground or margin surrounding the swamp. Such a swamp-lake, with its open patches of water and the fringing zones of flags, is a typical breeding-place for many of the inland water birds, and there the student of birds, who has been limited in his observations to the dry prairie regions, can become acquainted with species he will rarely meet elsewhere.

Along the bank of the river we shall find many of the birds we have met and studied in other localities; and in making our way into the real swamps we are often called to notice birds common in other resorts. Some of the birds found near the river-bank, however, are at home only amid such surroundings; and if our visit be made at the time of the spring freshets, we shall be afforded the opportunity to study several species then seen in their most favorable circumstances. After the melting of the ice at the close of winter, and after the heavy rains so common in this region in the early spring, the rivers in these prairie States overflow their banks and for a time spread out over the wide bottoms, gradually subsiding until they barely fill their channels. Thus the lowlands

in the vicinity of the rivers and adjoining swamp-lakes are annually flooded by the high water, and the trees thereafter indicate the height of the annual rise by the circles and the faded color of their bases. In many places we find whole areas of old forest where the trees have been killed by the regular overflow. Some of these areas contain only rotten stubs, long ago denuded of their bark, the decaying wood harboring myriads of insects and larvæ, which attract woodpeckers and other insectivorous birds. On all sides the tapping of the feathered foragers may be heard, but among the dead stubs we find representatives of two species which are more interesting to us because we seldom meet them elsewhere.

TREE SWALLOW.

Above the surface of the rivers and swamp-lakes there skims through the livelong day the graceful and handsome tree swallow. Frequently in its swift progress it darts downward to the surface of the water, and even dips into it with a gentle splash when some floating tidbit allures it, precisely as the farm boys have seen the familiar barn swallow do in its doublings to and fro above the ponds. Indeed, in its movements, the tree swallow might be mistaken for the barn swallow; but as it turns sharply to right or left, or passes low above our heads, we notice the marks which distinguish it from its relative. We remark the pure white of its under parts, and the glossy violet green of its upper parts, and we remark, further, that it lacks the long feathers which adorn either side of the tail of the barn swallow in its full plumage. The colors of the upper parts of this swallow have caused it to be known in some localities as the "green-blue swallow," and the white of its lower parts has suggested another popular name of "white-bellied swallow." The combination of the two colors seems to make the title of "black-and-white swallow" an appropriate one, and hence the specific term *bicolor* has been aptly conferred. The male alone exhibits the glossy colors of the back. As is customary among the smaller birds, the female is robed in less

brilliant colors. Her gown is dingy green or brown above, somewhat resembling the colors of the female grackle, and the white of her under parts is less pure and showy.

It is always a pleasant experience to me—accustomed to see only the birds of the dry regions, and to ramble chiefly over the meadows and through the upland woods—to sit in a skiff anchored out in one of the larger swamplakes and watch the restless flight of the tree swallows. Persons who have observed the chimney swifts fluttering over the meadows, at times skimming low above the weeds to snap down the insects hovering about the blossoms of the vervains, sometimes turning abruptly upward, and then circling higher with their half-fluttering wings, can form a clear idea of the movements of the tree swallows over the lakes and rivers. Sometimes they appear to be flying all in one direction—hundreds of them—at about the same height above the surface. Soon the flight may apparently cease for a short time, to be renewed by their appearance in similar movements. At other times they fly higher and with less uniformity of direction, doubling about the lake or a particular portion of it time and again, guided up or down, high or low, right or left, by the presence of their insect food. In my opinion, they do not fly with the velocity of the chimney swifts, especially when the latter almost graze our heads as they manifest their apparent delight in flying as close to us as possible without touching us, and then sweep away with the ease and grace of flutter which is characteristic of them alone. Nor do the tree swallows fly as swiftly as the barn swallows, in their flashing progress over the fields or the pond in the farmer's meadow. The flight of the tree swallows is suggestive of greater strength and ease of motion than that of the other species referred to, and, like them, the swallows spend most of their time in tireless and continued movements. They skim above the water hour after hour, frequently uttering a faint squeak, which doubtless expresses their gratification at the capture of a choice morsel, or their disappointment at a failure.

The localities especially frequented by the tree swallows are wooded areas which have been so regularly overflowed that the growth has become dead and bare, and

most of the trees have been reduced to mere stubs, some of which are even tottering on their decayed and worm-eaten bases, and where the water stagnates about the bottom of the trunks through the most of the season. Nearly every one of such boles or stubs contains one or more deserted holes made by woodpeckers, and in these cavities the tree swallows make their feathery nests and rear their young in comparative safety. The present name was doubtless given to these swallows because of their habit of nesting in cavities in trees. "The white-bellied swallow," says Robert Ridgway, "is an abundant species where there are suitable places for the location of its nests. Some years ago, there were many large dead stumps standing in the water, in a stagnant pond connected with the Wabash River immediately above the dam at the Grand Rapids, near Mount Carmel. This pond consisted of 'back water' resulting from the building of the dam, and the dead stumps were presumably the remnants of trees that had been killed by flooding, since they grew so thickly as to leave no doubt of their having once formed part of the adjacent forest. These dead stumps and 'snags' were perforated by countless woodpecker holes, and in these the white-bellied swallows had their nests, as did also many pairs of Carolina chickadees and prothonotary warblers. The swallows were most numerous, however, there being perhaps more than fifty pairs nesting there. In some old elm trees, with dead tops, growing on the 'commons' at Mount Carmel, there were also formerly several pairs nesting."

In the vicinity of Quiver Lake, about two miles north of Havana, Illinois, the writer has spent many agreeable days in the resorts of the tree swallows, watching with interest their restless flight, or observing their actions when they would perch for a few moments on the bare limbs at the top of the stubs. Among the dead and decaying stumps they flutter and wheel, either for pleasure or to feed on the insects that swarm near the stagnant water and decayed vegetation. At times one or more individuals will perch on a denuded branch or the top of a stub, perhaps chattering softly, sitting uneasily for a few minutes before again launching forth in their aerial excursions.

Surely the air is the natural element of these swallows! They can scarcely compose themselves to rest for a few moments. Their actions on any perch indicate that it is greater effort for them to sit still than to flutter here and there in the air which bears them up so lightly. Even when the cares of home claim the attention of the female, she frequently slips out for a few minutes of restful flight about the neighborhood. None of the swallows are gifted with musical voices, and the only notes we hear from them are faint squeaks uttered as they wing their strolling flight, or when they seize a choice morsel for their waiting maw. Occasionally one of the swallows can be seen to hover with fluttering wings at the entrance of a cavity, and perhaps we can distinguish several unfledged heads crowding out of the aperture in hungry expectation. Then the careful mother-bird will alight on the rim of the cavity and lovingly fill the emptiness stretched toward her, after which she will flutter away to replenish the larder, and the youngsters will drop back into their downy cradle in the cavity.

The nesting season opens early in May. I have found nests with full complements of eggs on the 10th of May, though in a season somewhat earlier than the average. Both birds of a pair fetch materials for the nest, though the male generally delivers his contribution to the female, and she disposes it in the cavity. If he alight by her side with a feather in his mouth, she will earnestly but gently pull it away from him, and herself fly with it to the nest. Frequently the foundation of the nest is a loose layer of dried grass, and upon that is the true nest composed of soft feathers of water-fowl or the domestic chicken. Sometimes the nest is made entirely of soft feathers, and I have often wondered where the birds obtained them. They certainly do not find them altogether about their watery domains. Probably they pick up the feathers dropped by the domestic fowls which sometimes wander along the banks of the river and lake. The male is so interested in the construction of the habitation that he will carry feathers to the place after the eggs have all been deposited, which the female will caressingly receive and dispose properly, the eggs being sometimes covered by later ad-

ditions to her downy bed. The female herself will occasionally pick up a feather in her restful outings after a period of confinement in her nest, and bear it proudly on her return to her home. The nests are in cavities at varying heights from seven to thirty feet from the ground or the water.

On one of our excursions to the summer quarters of these swallows we shall be afforded the opportunity to examine a nest. In the entrance of a cavity about fifteen feet above the water in which a stub is standing, we see a head protruded with an air of wonder as we splash through the muddy water. When we rap gently on the base of the stub, the female flits forth and flies to and fro about her home, while we climb the stub to make an examination. At times she flutters almost into our face, and angrily condemns our intrusion with her squeaking notes. Her excited actions bring to her aid other swallows nesting near her home, all of whom pass and re-pass, with angry chattering, as we continue our disturbance of their peace. The entrance is rather small, the cavity being probably the work of a hairy or red-headed woodpecker. It is too deep for us to distinguish the contents without enlarging the doorway, but the wood is so softened by decay that we can easily break it away sufficiently to disclose the nest. Some of the feathers become detached with the wood, and fall floating through the air. The observant swallows, now perched on convenient branches awaiting the results of our movements, quickly launch forth, and, skimming over the water, dexterously catch the feathers sometimes before they reach the water, and then fly toward the nest, as though immediately to replace the scattering material—a fine exhibition of skillful flight and of maternal instinct. In the center of the downy bed, which extends up the sides of the cavity, so that the eggs are almost hidden by the curling tips of the feathers, are the crystal white eggs, their freshness giving them a rosy tint. Repairing the entrance of the cavity, so that the anxious birds may continue the care of their unhatched treasures, we leave them in peaceful possession of their homes.

I have found complements of four, five, six, and seven

eggs. Some observers report as many as nine eggs in the complement. Their average size is .75 by .53 of an inch. As the nesting season extends through the latter half of May and to the end of June, it is probable that two broods are reared in many instances in this latitude. Though the tree swallows nest in colonies where the circumstances are favorable, isolated pairs are frequently found dwelling in places which are not suitable to colonies. Any scattered, denuded stubs in or near the water along river, lake, or pond, may attract a pair of these birds. Like some other birds we have mentioned—for instance, the crested flycatcher—the tree swallows in some parts of the country have adapted themselves to the change attendant upon civilization, and nest in the boxes prepared especially for their use. This is the case in some parts of the East, where the earlier settlement has brought about greater changes in the physical conditions of the country. They also construct their homes in recesses of large brick or stone buildings; and Rev. J. H. Langille says that he has seen their nests on the ground under flat stones, and in holes in the ground, elegantly lined with the feathers of the herring gull and of the eider duck, the feathers being so laid that the tips curled upward and nearly concealed the eggs. Thomas McIlwraith, concerning their nesting in boxes in the East, thus writes: "On the advent of the English sparrow, many pairs of swallows were summarily ejected from their boxes, and were obliged to retire to the remote parts of the country, and resume their primitive habits of nesting in trees. On this account they are not so common in towns and villages as they were some years ago, but are more generally distributed throughout the country."

Through the remainder of the summer the tree swallows continue their habits in the earlier season, though their social disposition and gregarious nature become more apparent with the advancement of the season. As the number of individuals is increased by the young broods on the wing, old and young wheel and gyrate above the water, their squeaking and soft twittering being more noticeable from the additional voices. They congregate in larger groups on the bare branches of their favorite

resting-places and upon sand-bars; and it is probable that in the middle and late summer they roost in numbers among the flags and weeds of the swamp-lakes, like some others of the swallows.

The tree swallow is said to inhabit the whole of temperate North America. It passes the winter in southern United States, Cuba, Mexico, northern Central America, and the Bermuda Islands. On its return in the spring it enters Illinois soon after the middle of March, varying to the 25th of the month, according to the advancement of the season. It appears to confine itself to the vicinity of the water-courses in its migrations. Indeed, in this section of Illinois it is seldom found far away from the rivers and swamp-lakes, except when it makes excursions in search of nest materials. Other exceptional instances are when isolated pairs take up their residence in the bird-boxes near rural dwellings and in town, thus appropriating the places of the purple martins and bluebirds that have withstood the encroachment of the English sparrows. The tree swallow leaves us about the middle of September, our lives brightened by its acquaintance through the summer, and our minds filled with anticipations of the recurring season of birds and vernal beauty.

PROTHONOTARY WARBLER.

Along the submerged margins of the river and adjacent lakes the bird-gazer will be attracted by the voice and movements of the prothonotary warbler, and persons who are familiar with this elegant little creature in its favorite surroundings agree with me that it is a veritable gem of the swampwoods. There are many handsome and even beautiful birds whose colors are so closely assimilated with the foliage they frequent that they are difficult to discover in the emerald setting. The beautiful little yellow warbler, which spends so many happy hours among the foliage of the maples along the highways, and which recites its simple ditty so persistently as it gleans its food among the fresh twigs of the orchard trees, is partially obscured by its protective coloration, though its attire is pretty and

attractive in favorable light. Even the splendid and loquacious rose-breasted grosbeak, who leisurely searches the elm buds which please his fancy for lurking insects, and who as he is working sings in a manner noticeable even by the most indifferent observer, can be discovered on his perch only by acute eyes. The prothonotary warbler, however, can not be overlooked, for in its beauty it flashes out from its sombre surroundings to the delight of the bird-lover. Its chosen home is in the overflowed bottom lands of river and swamp-lake, among willows stunted and blighted by the continually changing floods, where elms and maples grow slender and tall and finally droop with their imperfect garniture of sickly foliage, where mud and debris lie underfoot, and where the "twilight of the forest noon" is never dispelled by the genial sunshine. Amid such environments we find the vivacious little prothonotary warbler flitting from branch to trunk, now high, now low, its short song ringing all day long in accompaniment to its life of activity and gayety.

This handsome little warbler is by no means shy in its natural home, and frequently one will alight near us on some bare twig and allow us to observe it. Its chief beauty lies about its head, and we can not fail to admire the rich orange yellow, a glowing background for its jet bill and eyes, the latter flashing from their coaly depths the animation which makes the life of this warbler so attractive to the bird-lover. The bill seems a trifle too long for the comparative size of the bird, but its blackness serves to make it appear longer than it really measures. Now the steely blue of the back invites our notice, and the leaden hue of the shoulders and wings. Away goes the restless creature, but only to reveal new beauties; for as the warbler alights on another adjacent perch, it daintily expands its tail in fan-like movement and exhibits the beautiful border of white adorning the sides and extremity of that member. It is an interesting fact that the birds which are possessed of handsome tails love to display their beauties as they fly. Most persons have seen the handsome towhee or chewink flitting out of some brush pile and spreading its long black tail as though to display the showy white tips of some of the outer feathers. Who

that has been a rambler of the woodland has not seen the redstart or the magnolia warbler exhibiting to the best advantage this most striking feature of its attire? And so the little prothonotary warbler knows how to invite attention to the showily colored tail. Ever as it alights, either on horizontal branch or clinging against the rough bark of some gnarled and dead trunk, it spreads before us the splendid combination, and we know not which to admire the more, the beautiful head or the showy tail, while underneath all is the glowing yellow. Indeed, its popular name of golden swamp warbler has been well conferred upon it, for like flashes of golden light it flits here and there, and in the swamps only is it at home.

This warbler is found regularly in the Mississippi Valley, tending toward the south, and casually in the north-eastern United States and New Brunswick. It occurs westward to Kansas, Indian Territory, and Texas. It is perfectly migratory, wintering beyond the United States to South America. In early seasons this warbler appears in this locality about the middle of April, though ordinarily it does not reach our latitude until the third week of April. For two or three weeks after its arrival it resorts to the loftier foliage and lives somewhat silent and secluded among the tree tops. However, the cheerful, vivacious spirit of this gentle creature will not suffer it to remain long without giving expression to its emotions. With the rapid advance of the season it descends into the "lower story" of its leafy dwelling, becomes more musical, and exhibits all the qualities which make it one of the most interesting of the warblers.

It is a pity that the prothonotary warbler does not dwell where it might be seen and observed daily by all bird lovers. But perhaps it is well enough as it is, for many of the handsome and interesting birds that dwell almost about our doors are now neglected and even overlooked by persons who in other respects are moderately observant. Then the swamp-woods, naturally dark and gloomy and sombre, would be deprived of much of their extrinsic cheer and animation, if this mite of life and color were transferred from them. The glimmering brightness of such localities should lead us more frequently to explore

their recesses. If the prothonotary warbler will not come to us, we who love the birds should go to it, even though we must wade mud and water and trip over fallen brush-wood to reach its home and find it happy among its companions. And among its fellows it loves to be, for a merrier and more social woodsman never lived! Seldom does it sit long by itself chanting its loudly ringing, vibratory ditties. It is soon up and away in swift pursuit of some passing rival, and in midair the two flutter with outspread wings and expanded tails, dropping lower and lower in playful conflict, until one darts away to alight on a convenient perch or until both drop into the water.

We are not surprised to observe that the vivacity of the male makes him an ardent lover. After a fluttering tilt with a designing rival, in which he has driven the presumptuous gallant from the neighborhood, he gracefully and smilingly presses his suit with more fervent twittering and expressions of devotion. Having shown her that he is willing to battle for the possession of her, he seeks further to captivate her with his handsome form and glowing attire, shaking out before her the beauty of his wings, and unfolding for her admiration his beautiful blue tail with its white border. Thus he attends her movements with devoted manner, flitting near her when she coyly moves farther from him, or taking a seat near her that he may renew his whispered vows when she seems indifferent to his winning words and acts of devotion.

In the mating season their activity and pugnacious dispositions are most readily discovered. They are jealous lovers, and as they are seldom far from their homes at any time, a passing male, whether seeking a partner of his joys or merely going about his business, is very likely to be assailed jealously by the claimant of the premises. A fluttering battle of yellow, steely blue, and white is the usual result, though these conflicts are generally harmless to both parties, and serve only to give unwonted animation to the sombre life of the swamp-woods. They chase one another in apparently reckless flights among the underbrush and through the foliage, and dart around the tree-trunks with entire disregard for accidents, quickly alighting and uttering that characteristic song which rings

out with regularly increasing pitch, short but loud, clear, and remarkably vibratory.

They are very restless creatures. All about the claimed limits of the pair the male flits, peering into every nook and cavity, examining every available site for a home, and picking up morsels of food from the crevices of the logs and stumps. Frequently in his explorations the male peeps into a cavity occupied by the wife of a neighbor. He scarcely has time to withdraw his head, however, ere the jealous owner guarding the exterior is upon him, and the prying visitor is not slow in retreating before the fierce assault of the watchful sentinel. The inordinate restlessness of these warblers is second only to that of the wrens, and we are reminded of the movements of those little busybodies as we watch the warblers incessantly hopping and flitting from one station to another. They are known as "willow wrens" in some localities, yet while their habits are so nearly like those of the wrens, they are real warblers, and their song is not much unlike that of the well-known yellow warbler, though it is executed with more spirit and intensity.

The nesting period of the prothonotary warbler begins soon after the first of May in advanced seasons, and about the middle of the month in ordinary years. In 1896 I found nests with full sets of eggs on the 12th of May, yet in ordinary seasons the nests do not contain their complements until about the 20th. The usual nesting sites are cavities in stumps and trees standing in water, or so situated that the nest is over water, or somewhere in the vicinity of water. In seasons of drought the early receding of the water frequently leaves their nesting grounds bare and dry, as it did in 1895 in the locality where my notes were made. It was my fortune that spring to examine about fifty-five nests of the warbler. While the sites of all the nests were on the banks of rivers and lakes, no site was found in water or over water, though in the next spring most of the same sites were in water which did not recede before the close of the nesting period. My notes record only two nests below five feet from the ground, and in the majority of instances the cavities were about nine feet from the ground, the distances varying from four

and a half feet to fourteen feet. If these grounds were submerged, of course the sites of the nests would be nearer the water. If the stub or trunk inclines, the cavity is always on the under side, this, however, being the work of the downy woodpecker or the chickadee which excavated the dwelling. Most of the nests I have examined were in new, unused excavations, begun by the builders in the preceding fall and completed during the winter and early spring. They are nearly always in unsound wood, so decayed that the surrounding parts can be easily broken away with the fingers.

Among most of the birds it seems to be understood that the females are chiefly responsible for the construction of the homes in which the broods are to be reared. Loving and attentive as most of the males are in the mating time, they seem to know that their domestic duties are of a higher order than mere weaving and plastering. Indeed, can it be that in their love concerns they evince such ardor and persistence because they know that their part of the home-building is to be music and easy dalliance instead of humdrum, prosy labor? Shame upon us to impute such a motive to the earnest little lover of whom we are writing. Though his mate must fetch the materials she wishes for her mossy habitation, he shows his willingness to help by flitting by her side now and then in her hurried trips, and even attempting to gather fragments of moss or other materials which please his fancy. When he does not accompany her, he lingers about the site, perhaps to hold possession from neighbors who are disposed to disregard his prior claim; and when she returns with her slight burden, he lovingly joins her near the doorway and attends her with all possible gallantry. In every way he gives her to understand that only deference to custom prevents him from carrying her burdens, and that she need give no thought to the ordinary supplies for the table—he is amply able and willing to procure everything desired in that line.

Is it strange that we so intuitively associate elegance and taste with the homes of birds of beautiful plumage and refined manners? Who would fancy that a rustic bed made from a wisp of dried grass is the ideal of the elegant

bluebird? Or who, upon first acquaintance with our stout, burgher robin, would think that he dwelt in a mud hovel? The prothonotary warbler is a striking example of beauty in uncouth surroundings. I own that I was disappointed on first examining a nest of this warbler and finding only a flimsy bed of dark and dried materials. The handsomest part of the nest is the foundation, which is ordinarily composed of small pieces of dark green moss. On the mossy foundation is a layer of skeleton leaves, fibrous roots, dried leaves, and weed stems, averaging less than an inch in thickness. The nest is finished internally with fine grass and a few horse hairs. In some instances the moss is almost entirely lacking, and in others the intermediate layer is very flimsy; but such is the typical nest, with few variations to show individual taste. Very few of the nests I have examined were three inches high.

There is a great diversity both in the size and in the coloration of the eggs of this warbler. In one type of coloration the eggs appear to be miniatures of the eggs of the towhee, having fine dots of light reddish brown evenly and scantily distributed over the pinkish white ground. Then there is the style of marking which makes the eggs resemble those of the house wren on a larger scale, having the specks of reddish brown so thickly and evenly distributed that the eggs have nearly that color. The handsomest eggs have a ground of china white, or like cream that has just been poured over strawberries, with large marks of cherry and walnut and lilac, some of the marks being so confluent at the larger end that they form comparatively large areas. In about seventy-five nests which I examined in two seasons, I found no complement of more than six eggs, and I found complete sets of three, four, five, as well as six. Sets of six appear to be more common in my experience than any other number. Some accurate observers report sets of seven occasionally, and one or more instances of eight eggs in the complement. Only once did I find an egg of the cowbird, which was in a set of six, lying in the back part of the nest, the entrance measuring two inches high and one inch and a half wide.

While the master of the household is cheerfully guard-

ing the portals and vicinity of his home, the mistress is no less faithfully brooding the interior. She is not decorated with colors quite so bright as those which make the male a flash of brilliant cadmium; for the yellow of her head is one degree less glowing, though her eyes are no less flashing. When we tap the stump which shelters her home, it is interesting to note her look of startled wonder as she peeps out to learn the cause of her alarm. A single rap on the stub containing the nest will generally cause the female, if she be within, to dart from the entrance after the first startled look. She drops almost to the ground, where she flutters along with outspread tail, stopping now and then on a convenient weed-stalk or fallen branch, softly twittering, with tail spread in fan-like appearance, and with slightly outspread, quivering wings. This is when she exhibits her maternal anxiety in the most appealing manner; and surely we must be hard-hearted if we can withstand the entreaty expressed in the slightly lifted wings and the scarcely audible twitterings. Scarcely has she alighted, however, before another form darts to her side, and both hop among the foliage and branches about us, both earnestly chirping now and scolding at the intrusion we so rudely make into the quiet home. If we have despoiled the home, the female will flit to the site when we depart, and cling to the side of the ruin, gazing into the cavity for a time without audible expression of feeling, as though at a loss to know what has happened to her home. Then she will creep into the now enlarged cavity, and make a round of inspection. After emerging, she will fly to where the male is still chirping, or perhaps now making the air to vibrate with his loud ditties. Then another visit to the spot will be made, followed by the same wondering examination of the cavity.

In my rambles once I found a cavity made by a chickadee in the preceding year, and later somewhat enlarged, not more than four and a half feet from the ground, in a low, gnarled willow stump. Peeping into it, I saw the slender black bill of the mother warbler, and then the bright eyes which apprised me that she was wide-awake and alert. I struck the stub below the entrance several

times with a stout stick, but the devoted mother bird only ruffled her feathers and crouched lower over her treasures. How I admired the handsome little creature as she thus persistently waited to share the fate of her household! When I inserted my finger into the cavity, she only moved slightly to either side; and she finally suffered me to remove her gently from her eggs, darting swiftly away when I released her in the open air. After my examination of the premises during the ordinary remonstrances of the owners, I withdrew a short distance to watch their actions. Soon the mother bird alighted and clung to the entrance, peering into the cavity. Seeing her home as she left it, she popped into the recess and took her station upon the eggs, while the male sat on a near perch and repeated his ringing melody. Truly the acquaintance of such a happy woodland family will compensate any upland observer for his efforts to form it.

The ringing chant of the prothonotary warbler is heard, though with less frequency and spontaneity, through July and in early August. The warbler becomes more secluded through the moulting season, again resorting to the tree-tops, as it did immediately after its spring advent, and shows little of the active spirit which is its chief charm in the mating season. In its solitary mood it does not care to sport with its companions, as it did in the early days of vivacious rivalry, to all appearances procuring its livelihood with quiet demeanor until its annual southward movement. The time of its departure varies from the latter part of August to the first week of September.

KING RAIL.

There are some birds which are found only locally throughout their habitat in particular regions which supply the conditions necessary to their peculiar habits. The charming species last sketched is a fair example of the birds whose residence depends upon certain favorable conditions, and the king rail likewise makes its home only in particular environments. It is a typical bird of the swamp-lake, and only in its weedy resorts can it be observed

and studied with any degree of profit. Its position among rails is no mean one, as is indicated by its proud title of "king rail," and its neat, trim figure, its handsome attire and noble bearing are all comprehended in its specific name of *elegans*; it is the elegant rail both in name and in fact.

The home of the king rail is the swamps and marshes in eastern, southern, and middle United States. It is found as far west as Colorado, and frequently wanders as far north as southern and western Canada and the Dakotas. It is the fresh water representative of the clapper rail, which is so common on the salt water marshes of the Atlantic coast. It makes its way into the swamp-lakes of this region early in April, and finds a congenial summer home until the latter part of October. It dwells almost entirely in the swamps and meadows bordering them, living in such privacy that the untrained observer might spend whole days in the swamps and not be sensible of its presence, except from the sharp cries it utters and the nests which he might happen to find. Indeed, the extreme wariness of the rail is the first characteristic which impresses the mind of the student who is forming its acquaintance.

It is quite averse to taking wing, and it is so thoroughly at home in the watery, flag-covered tangles that only close pursuit by men and dogs can force it to rise from its hiding places and seek safety in flight. It prefers to run through the weeds and brake, where it can hide from threatening danger, skulking among the thickly growing tufts of flags, and gliding between the close, upright stems with the celerity of some of the smaller sparrows in their movements through the grass of the meadow. If its pursuers begin to close in upon it, it does not hesitate to run out into the deeper portions of the swamp, and sometimes it dwells in the parts of the swamp where it can not wade without having most of its body under the water. I have frequently seen one plunge boldly into water where it certainly could not wade. It is said to swim readily, and sometimes to walk on the bottom where the water is above its head in search of its food.

The king rail has a wonderful ability to secrete itself in

the reeds almost under one's feet, and it can thread its way through the stems in places which appear impassable even to its slender body. However, it is not compelled to walk in the mud and through the water to get to its habitation in the deeper water, for it has large feet and long toes, with which it can walk upon the bent reed stems and submerged vegetation. I have seen it run over the floating "punkin vines" as easily and firmly as though it were on dry ground. I am certain I should not attempt to run one down in its watery kingdom, for it can sprint like a young turkey, and is so thoroughly familiar with its swampy resorts that we conceive its perfect adaptation to its surroundings. It is amusing to watch the game of "hide-and-seek" it plays with a self-conceited dog that is not versed in the baffling ways of the king rail. After many settings and pointings at the elusive sprite of the reeds, the dog will finally give up in a manner that plainly says "sour grapes," and thereafter pay no attention to the presence of this creature, if he be a dog that can learn by experience.

Sometimes the king rail will start up in hasty flight when quickly approached or surprised, especially when it is on the migration, and before it is comfortably settled in its summer home. Frequently, when it reaches its resorts, the high water and the absence of the later tall growth of reeds compel it to depend more on its powers of flight to escape danger than upon its ability to run and hide in its reedy coverts. When it is surprised and flushed under circumstances which are not favorable to its hiding, it starts up with a somewhat labored movement, beating the air with rapid strokes, and dangling its long legs like the herons and bitterns as they spring into the air. Its wings seem rather short compared with its body, and as it has a short tail, its first movements in flight seem aimless and unbalanced, but when it is well under way it flies steadily and strongly. When in full flight its body appears unusually long, because it stretches forward its head and neck, and protudes its legs behind its body. Like the bitterns, it drops abruptly at the end of its short flights, and immediately runs through the reeds from its alighting place, on which account it is difficult to flush a second time.

The belated wanderer can see these birds flying in the twilight on their way to their feeding grounds. It is probable that they are somewhat nocturnal in their habits, feeding chiefly at night and resting in their reedy hiding places through the day.

The nests of the king rails are usually covered with water, or where the water is shallow, but when the banks of the swamps are more sloping the nests are made in tufts in the deeper water, though more nests are found in the fringing flags. I learned mentally to divide the width of flags in large swamps into three zones, the outer one occupied by the rails, the middle one by the coots, gallinules, and bitterns, and the inner third by the bitterns and grebes, though each species named can be found nesting in all parts of a swamp to a limited extent. The late nests are found nearer the open water, and the nests with incubated eggs are found in the drier area in the borders of the swamps. We may, therefore, generalize that the rails locate their nests where the water is receding, and they perhaps intend that the ground shall be uncovered of water when the young step from the nest. I never found late nests on the dry or uncovered ground, but I have examined nests with incubated eggs in the outer flags where the ground was uncovered and even baked hard.

The nests of the king rail are commonly made of small pieces of flag stems, the material in the upper portion having a softer texture than the rushes which form the base of the nest. One of average dimensions is eight inches in diameter externally, and six inches across the shallow bed, the latter being one inch and three-fourths in depth; a nest projects from six to ten inches above the water in which the tuft of flags stands. In most instances it is impossible to distinguish the nest of the king rail from that of the Florida gallinule, usually found in the same swamps, by the construction alone; yet the drooping of the tops of the flags in the tufts containing the rail's nest is almost characteristic, and is only rarely seen in the nest of the gallinule. On the other hand, the habitation of the king rail is rarely found open above. Many nests of the gallinule average much larger than any nest of the rail.

The king rails generally begin to nest about the first of May, but soon after the middle of April in unusually dry seasons. In the latter instances the nests are made in tufts of flags or grass on the dry ground, frequently in parts of the swamp which are used as feeding grounds for herds of cattle. Sometimes the nests on the dry ground are made like the home of the meadow lark, a convenient depression being found in a tuft of grass, in which a bed of dried grass is spread, and the upper ends of the stems drawn together to serve as a canopy. The presence of the shelter, made by the drooping and drawing together of the tops of the stems, is a pretty certain index of a nest with its full complement, though I have frequently examined nests with incomplete sets thus sheltered. The eggs in a complement number from eight to fourteen, sets of ten, eleven, and twelve being the most common. They are a dingy cream color, having small spots of varying shades of brown, and deeper shell markings of light purple scantily and irregularly distributed over the surface anywhere, sometimes more thickly at the larger end. In size the eggs vary from 1.55 to 1.90 long, and from 1.16 to 1.29 broad in inches.

It is not unusual to find a king rail in her canopied home sitting contentedly in the shade of the reedy walls, and the first glimpse of her brown form will amply compensate us for the difficulties encountered in reaching her home. If we are not over hasty she will give us time to impress on our memory a picture that we may recall with pleasure. She does not regard the fact that we are only three feet away, and bending over her with eager eyes. She is not frightened, but interested, and the expression of wonder in her face plainly asks what sort of creature are we. She broods her nest lightsofely, turning her head to watch us with wondering look. Thus we observe her long cylindrical bill, so well adapted to procuring her food in the mire and shallow water. Soon she glides from her nest, and with easy motion runs among the adjacent reeds, passing between the base of the stems with such facility that we at once note her compressed body, and hence understand more fully the meaning of the expression, "as thin as a rail." She does not go far, but turns

to run among the reeds about us, uttering a harsh cackle not unlike the cry of the guinea-fowl, and having a peculiar metallic ring. It can be very well represented by the syllable "cairk." Anxiously and impatiently she runs in and out among the tufts while we remain in the vicinity of the nest, loudly and angrily disputing our right to examine the premises. As she hovers about us in the reeds, now coming into sight a moment and then quickly shrinking behind a tuft, she manifests considerable boldness, hence we conclude she can exercise her sovereign rights when she deems it wise. As we follow her restless movements among the stems, we can note the main features of her plumage. Her upper parts are yellowish-brown, striped with black. Her throat is white, and the cinnamon brown of her breast has led the sportsmen to style her the "red-breasted rail." Her bill looks rather longer than her head, and occasionally we can see the bright red of the iris when she turns her head sidewise in her remonstrances.

The king rail is said to be irritable and quarrelsome in its disposition, and it is especially overbearing toward its neighbors. The species should be named the "queen rail," for the female is without doubt the head of the family. Is it not she who sometimes takes possession of the homes of her meek neighbors, the gallinules? Is it not she who defends her home so spiritedly when it is threatened? Hence it seems to me that the king rail is more king by marriage than in his own right. She lords it over the gentle-spirited mud-hens with whom she dwells, and frequently saves herself the labor of making a nest, and the time to lay so many eggs, by appropriating both nest and eggs of a comfortably settled gallinule. I have frequently found nests containing incubated eggs of the Florida gallinule and fresh eggs of the rail. On May 18, 1895, I found a nest containing eight incubated eggs of the gallinule and five fresh eggs of the rail, the eggs of the former occupying the middle of the nest, and the eggs of the latter lying in the outer circle—indubitable evidence to me that the rail was the usurper of the home.

The food of the rail is taken chiefly from the shallow water and the soft mud in its resorts. There it finds

aquatic insects, young crayfish, snails, tadpoles, minnows, animalcules, besides the seeds of the various aquatic plants. It probably procures a bountiful living, as such localities are rich in animal and plant life to supply the needs of the swamp birds. The economical relations of the king rail are not so important to the farmer and the gardener as those of the birds that resort to the woodlands and open upland prairies; yet it is without doubt a useful member of avian society, and certainly worthy the slight attention given to it by those who sometimes visit its home in the swamp-lakes.

AMERICAN BITTERN.

While there are some birds which have readily adapted themselves to the changing conditions brought about by the increase of rural population, there are others which do not take so kindly to the rapid encroachments upon their domains. The latter have withdrawn to secluded localities where they may retain all their primitive habits. Such has been the action of the American bittern, formerly so common throughout this prairie region that it could be found on every little slough and water-course. The draining of the sloughs so characteristic of the original prairie regions, and the drying up of the smaller streams in consequence of the steady clearing of the forests, have deprived many of the water birds of the scattered resorts they found so attractive. Now the American bittern can be found only in the swamp-lakes and bottom meadows of the larger rivers. Like the American Indian, it has retired before the advancing wave of civilization, and clings to the old and marked characteristics of its race. When seeking new resorts, however, the bittern can sometimes be seen flying over the prairies just before nightfall, always flying high and somewhat slowly beyond the reach of harm and detailed observation.

The habitat of the American bittern is temperate North America; in summer from the southern limits of the middle States to about the sixtieth parallel, and in winter from the Southern States to Guatemala, West Indies, and the Bermudas. In central Illinois it is perfectly migratory,

reaching its swampy home about the middle of April, where it can be found by experienced observers until the last of October. Its shy disposition is more apparent than that of the king rail, and unless we chance upon it in our tramps through the bog, we might fail to notice its presence. It is not dexterous in running and skulking in its reedy haunts, but is of a more contemplative disposition, and when undisturbed will stand almost motionless for many minutes. Its attitude in this mood is most peculiar. It elevates the forepart of its slender body until it is nearly in a line with its long legs, and then stretching upwards its long neck and sharp, pointed bill in the same continuous line, it stands rapt in reverie. Only acute observation can then detect it among the stems of the reeds with which it is so closely assimilated. Thus it lives through the day, like an anchorite, spending hours in reverie and contemplation, no doubt reputed to be wise and sage by the other inhabitants of the swamp-lake who pass it in their more active enjoyment of the bright hours of the day.

When disturbed in its resting places in the daytime, the bittern arises in a hurried, nervous manner, with legs dangling and neck outstretched, jerking its body forward with every flap of its strong wings, hoarsely squawking. Its harsh cry of alarm sounds something like the syllable "kawk," and persons who live in the vicinity of the swamps know the bittern as the "squawk," from the hoarse, guttural note it utters. It ordinarily flies some distance, rising above the reeds in a slightly ascending line until the end of its flight, when it drops rather abruptly into the flags in another part of the area. When one is well under way, it sometimes soars easily and gracefully like one of the larger buzzard-hawks, though the long legs thrust backward and the neck bent upon the forepart of the body indicate its relationship to the herons. Sometimes one will soar and circle high in the air of its own accord, and I have thus seen individuals floating at such great heights that one unacquainted with their peculiar habits would believe them to be hawks.

When one arises in the startled manner described, on slowly beating, heavy pinions, moving unsteadily because

of its lack of the strong, rudder-like tail by which the smaller birds guide their quick flights, and uttering its harsh squawks, other individuals within hearing or sight frequently take warning at the alarm of the first bird and arise in the same manner. They then mount to a moderate height and soon combine into a flock, sometimes as many as thirty in the flying company, and thus they circle around the outskirts of the swamp for a few minutes, after which they settle one by one in other parts of the lake to continue their feeding and contemplation until they are again disturbed. Thus while they seem to enjoy solitude and live somewhat independently of the others in the swamp, each feeding and resting some distance from his fellows, at times they discover a slight community. However, their communications with one another are like the veritable yea and nay of the scriptural injunction.

In the typical swamp-lake I usually found the American bitterns feeding about one-third the way out into the swamp, beyond the muddy zone and in the shallow water somewhat less than a foot deep. There the water would frequently become turbid with the ooze stirred up in their quest for food. I have surprised them feeding mostly in the afternoons, and they seemed to be more numerous in their resorts toward night. Other observers assert that they feed chiefly at night. Colonel Goss says: "They leave their hiding places at the approach of night, and I have occasionally found them searching for food during the day, in cloudy, rainy weather. Their food consists of minnows, field mice, frogs, tadpoles, crawfish, insects, and other small forms of life; and as evidence of their destructive habits I will say that I found in the craw and stomach of one, shot beside a very small pool of water upon overflowed land, twenty-two sunfish, averaging a little over an inch in length."

As we continue our acquaintance with the American bittern, we soon become familiar with its heavy, guttural notes, the "booming cry of the bittern." Especially in the mating and nesting period can it be heard issuing from the reedy coverts. The notes have suggested various sounds and syllables to different observers, and have caused corresponding titles to be conferred upon the species by

the residents of the regions in which it is common. The deep bass notes are so peculiar that they are readily recognized after being once identified. To me they suggest the syllables "boo-hoo," accented on the first, and uttered in a rumbling tone, not unlike the deep bellowing of a bull at a distance.

If the bird-gazer can espy one of these birds in a poetic mood, standing among the flags on one foot, in the attitude peculiar to the heron and cranes, the other foot drawn up well under the body, and the head drooping forward on the breast in drowsy indifference, and then watch the same bird suddenly alter his whole mien in the execution of his notes, the sight is worth remembering for its ludicrous features. The bird first adjusts his ungainly members into a more compact form, and then apparently attempts to disgorge something which his stomach rejects. In the act of throwing forward his head, he utters with this apparently painful effort the low, rumbling, bellow-like notes with which he expresses the depth of his affection for his lady-love. It is no wonder that this bittern is vulgarly called the "bog-bull" and the "thunder-pumper," for the rumbling notes and the contortions exhibited in their execution suggest these expressive titles. It also has a peculiar call which at a distance sounds like the driving of a stake with a maul. The notes represent the sound of the stroke, followed by its echo in the woods, and hence the species is frequently called the "stake-driver." The voice of the bittern is heard chiefly toward the close of the afternoons, when the dreamer emerges from his lonely retirement, and desires the companionship of some congenial spirit. Through the twilight and into the early part of the night the notes can be heard at irregular intervals, for the bitterns are like the bats and the whip-poor-wills in their crepuscular habits.

The nesting period begins about the first of May in ordinary seasons, though in advanced seasons nidification begins correspondingly earlier. The nests can be found through May and June, and even into the early part of July, though only after freshets have caused the water to rise and destroy early nests do we find their habitations so late in the season. When the birds are living in any

swamp in numbers, the nests may not be widely scattered, so that in some instances the bitterns appear to nest somewhat in community. If there are only a few pairs inhabiting a swamp of any extent, they usually choose sites in different parts of the area, well apart from the other families.

The nests are generally situated among the reeds on or near the ground or above water. Sometimes they are placed on low bushes or "buck brush" growing in the swamp. They are found in the most secluded and inaccessible places in the swamp, or near the edge of a lake or small body of water inhabited by the birds. The bitterns make their nests like the coots, using coarse, thick rushes, piled in the tuft or clump of reeds selected to a height varying from eight to fourteen inches. Unlike the coots, the bitterns usually line their nests with dried grass. Frequently small sticks are used to give additional strength and stability to the nests. The structures vary from one to two feet in diameter, though they are very shallow, the depression for the eggs being about the size and capacity of a saucer. Often the nest is well protected by the over-arching tops of the surrounding stems. The eggs number four or five, sometimes only three. They are brownish drab or coffee-colored, measuring from 1.90 to 2.00 inches in length, and from 1.40 to 1.50 in breadth.

The female broods her eggs very closely, and is not easily induced to leave them. She generally suffers the observer to pass quite near her home without making its location known by lumbering into the air, and it is frequently necessary to stumble almost upon the nest before she will rise. Sometimes she will not even then leave her nest, but remains with her charge until she is removed by force. Often she displays considerable pugnacity, ruffling her feathers until she resembles an angry turkey gobbler, facing the intruder at every turn, ready with her long, sharp bill, which she darts fiercely at her enemy. Like the herons, she is mostly all bill, neck, legs, and feathers. As she thus valiantly defends her home, we are afforded the opportunity to note her chief characteristics. The prevailing color of her upper parts is yel-

lowish brown, streaked and sprinkled with darker shades. The upper mandible of the long, javelin-like bill is dark, the lower mandible more yellowish. The iris of her flashing eye, now glaring angrily upon us, is bright yellow, and her feet are yellowish green. As she thus crouches over her treasures, with wings partly spread and body thrown back, so that she can launch her weapon with greater momentum, she is indeed a doughty champion. Her undaunted, Spartan-mother-like defense of her home excites our respect, and we leave her to rear her brood in peace. We may chance upon a nest containing downy young, while the valiant mother-bird is absent to procure supplies. Their long, brownish-yellow down, growing in patches over the head and body, causes the little creatures to look even as comical as the mother-bird in her wrath, or the father-bird when uttering his love-notes.

PIED-BILLED GREBE.

One of the commonest birds of the swamp-lake is the pied-billed grebe, though it is not confined to the swamps of the river bottoms. When the glamour of nature began to draw my steps afield and along shore, I learned to know this gentle, suspicious creature. Frequently I met it gliding over the surface of the small inland ponds in my daily rounds, and its remarkable adroitness in diving soon showed me the folly of my thoughtless attempts to shoot it. Won by its graceful movements on the water before I discovered that it is well-nigh helpless on land, I added it to the increasing list of my avian friends, and ceased to persecute it when I chanced upon it. Its names, both popular and scientific, are unpleasant in sound, and none of them is likely to awaken interest in the owner. Among the hunters and inhabitants of the swamp regions it is commonly known as the "hell-diver," and though this term expresses the most notable characteristic of the grebe, it is not an appropriate appellation for the graceful, buoyant bird riding in the water with head erect, watchful for possible danger. The local name "water-witch" is by no means inapt, for the creature disappears below

the surface of the water so lightly as scarcely to start the ripples, and appears at a distance as though evoked from the nymphaean realms. The terms "dipper" and "diadipper" are also suggestive of the rapid disappearance of the little creature as it dips forward into its favorite element. The appellation of "dabchick" is another point in evidence of the fact that its names are not euphonious, though they may be expressive and apt in their meaning.

This grebe has an extensive geographic distribution, inhabiting the southern British Provinces, most of the United States, and ranging southward to Brazil and temperate South America, as well as the West Indies, breeding throughout the most of the above regions in suitable localities. In Illinois it is a regular summer resident, reaching the central part of the State on its northward movement about the middle of April, and remaining until the last of September. On its migration and after the breeding season it is rather trustful, and any of the small inland ponds and lakes may be tenanted for a short time by one or more of these grebes, though the pond may be a resort for the small boys of the neighborhood as a swimming place. Sometimes a millpond or an open branch of water in town or city will allure one to rest for a few days from the weariness resulting from a journey unsuited to its powers, but which it is actuated to undertake by irresistible instinct to seek—

"The plashy brink
Of weedy lake, or marge of river wide."

Once settled upon a resting place it is not easily evicted, and sometimes loses its life from the aversion to take wing in escaping danger.

The natural home of the grebe is the reedy swamp or lake, where it can procure abundant supplies of food, and can readily find secure retreats without recourse to flight. The stagnant water teems with insects, tiny minnows, animalcules, and seeds of water grasses, and among the lily pads and reed stems it can quickly and securely hide from fancied or real danger. The materials it uses in constructing its soggy, miniature mound are ready at hand; and thus freed from the struggle of "keeping soul

and body together," it can sport with its fellows and enjoy its round of existence. After the rest of several days or a week on the open and unprotected ponds of the inland districts, it makes its way to the swamp-lakes, or other suitable nesting areas, and is seldom seen on the ponds again until after its brood is reared.

The grebes are not handsome birds, and the colors of the pied-billed species are not even attractive. Seen as it floats lightly over the water, and glides away from us to place itself at a safe distance, it presents a dark brown as the prevailing color of the upper parts, and its breast is dingy white. Its tail, like the tails of most of the swimmers, is merely a pointed tuft of downy feathers. The wings are similarly covered, lacking the strong flying quills so essential to the wings of birds more given to flight. Owing to the insertion of its legs toward the rear of the body, it is extremely awkward on land, and tumbles forward in its helpless attempts at locomotion. In the air it is at almost equal disadvantage, its movements being labored and tiresome. But on the water it floats with the buoyancy of down, agile as the summer breeze, easily diving to escape shot or bullet, and swimming long distances under water to elude its pursuers.

The vigilance of the grebes is apparent to one who visits their colonies, for on such occasions few individuals are seen, and the unsuspecting visitor might determine that the grebes were not nesting about any particular area of water. I have sometimes spent whole days in their breeding resorts, and found their nests by the dozen, without getting a glimpse of a bird. When suspicious of danger or observation, they are quick to secrete themselves in their reedy surroundings, and only when the visitor is hidden can he watch their movements near their homes. When they are undisturbed, however, they reveal a nature no less buoyant than their deportment when sporting in their natural element. In "Our Birds in Their Haunts," Rev. J. H. Langille thus writes concerning them: "They seem most active between daylight and sunrise. Then, if one is well hid away by the still water, their active swimming and graceful diving can be seen to good advantage. Spreading considerably apart, they

allow themselves plenty of room. How the ripples, started by their breast, enlarge like arcs of circles on the glassy surface, and intersecting each other, move on increasingly to the shore! In quick succession they glide softly under the water and remain for some time, no doubt taking their food of small fishes and aquatic grasses. Nothing can exceed the ease and gracefulness with which they dive, so tipping under the water as barely to ruffle the mirror-like surface. Presently they reappear, one after another, shaking their heads, and looking this way and that, as if to make sure of their safety, but still swimming well out of the water. Gliding along much more rapidly than ducks, they describe their elegant curves for a few seconds, and then all disappear again. What a happy family they are!"

In this section of Illinois the grebes begin to nest about the first of May, and full complements of incubated eggs are found by the middle of the month. They are among the earliest of the birds of the swamp-lakes in their nidification, though the height of the water causes the time of nesting to vary considerably. Of the many nests I have examined, all were situated among the flags in the deeper parts of the swamp, and I learned not to seek them outside the inner half of the zone of flags encircling the open area of water. When they nest on small ponds, they anchor their homes along the weedy margin. The presence of a pair or more of these birds on a body of standing water in late May and June is *prima facie* evidence that the birds have comfortable quarters somewhere within swimming distance.

The nests are very similar in construction. In every instance, in my observation, they are anchored among the stems of adjacent flags, not among those which grow thickly, but among those which stand in tufts, leaving little areas among them, thus furnishing sites for the nests in the open spaces. A typical nest is a little mound of blackened, decaying vegetable matter, evidently dredged principally from the bottom of the pond. It is generally about three inches high, seldom more than five, from eight to ten inches across the top, and from sixteen to eighteen inches in diameter at the surface of the water.

The cavity for the eggs is from five to six inches across, and is comparatively shallow, being rarely more than an inch and one-half deep. Attached to the broad rim of the mound, like entangled raveling from the material in the mass, there is from a pint to a quart of loose, shred-like, blackened material, which is used by the female in covering the eggs in her absence. The mound is made of grass, flag stems, moss, and mud, all in a soaked, decayed condition, interwoven with the roots and subterranean portions of the stems amid which it is anchored. Few that I have examined would float easily if detached from their surroundings.

An interesting feature of the incubation of this grebe is seen in the fact that the female covers the eggs when she leaves them for a time, unless she is completely surprised on the nest and forced to leave so hurriedly that she can not take time to place her home in order. However, I have never been able to surprise one on her nest, though other bird-seekers have been more fortunate. Some writers assert that this grebe covers her eggs by day, and depends upon the combined heat of the sun and the decomposition of the matter in the soggy mound to keep up their temperature, the bird incubating only at night. The fact, however, proved by accurate observation of the birds in their breeding resorts, is that the female patiently broods her eggs by day as well as by night. She sits closely on her eggs, seldom leaving them to take food, and the covering material is so disposed that it can be hastily scratched over the eggs almost by one motion of her short legs. I have found many nests over which the shreddy covering had been thus hastily thrown, for one or more of the eggs were partially exposed. Complements in nests I have examined varied from five to nine, and even larger sets are recorded. The eggs are bluish white when fresh, but contact with the nest often tinges them with yellowish-brown stains. Frequently the eggs are more or less thickly covered with a limy or chalky granular coating, which obscures the ground-color. Davie gives the average size of the eggs of this grebe as 1.72 by 1.17, in inches. The breeding season extends until the latter part of June in exceptional instances.

At the close of the breeding season many of the grebes doubtless leave the swamp-lakes for local open ponds scattered over the country, away from the bottom regions. After early July individuals may frequently be seen gliding over such ponds, generally solitary, sometimes in pairs. When they are not harassed beyond endurance, they may remain until the time of migration, if the pond supplies them proper food. It is probable that many begin their southward movement early, and travel by easy stages, lingering here and there on local ponds and reservoirs which please their fancy. From the imperfect adaptation of their wings to flight, it seems that they would journey on their migrations as much as possible by water. It is natural that they should be unwilling to forsake the friendly element. The very features of their structure, which render them awkward and almost helpless on land, give them additional advantage in the water. The slight movements of their feet, situated toward the rear of the body, tip the head and breast forward, and give them the remarkable ease noticeable in their diving, so much so that none of the water birds exhibits greater dexterity. In illustrating the doctrine of compensation, Emerson might have chosen no object more appropriate than the structure of the grebes; for while nature has left them apparently defective in some features, she has amply compensated them by conferring upon them more enlarged powers in other directions.

AMERICAN COOT.

The commonest birds of the swamp-lakes are the American coots. Everywhere through the fringing growth of flags their unsheltered nests are to be found, and out upon the open water their dark forms dot the shimmering surface. To the inhabitants of these regions, and to gunners generally who are not familiar with their book names, the coots and the gallinules are known as "mud-hens." The coots are readily identified by the milk-white bill, and are locally known as the "white-billed" or "ivory-billed" mud-hens, to distinguish them from the Florida gallinules,

or "red-billed" mud-hens, with which they intimately associate. The coots can be studied to advantage only in the marshes, though on the migrations they sometimes stop to rest a few hours on the small prairie ponds and streams; but like the other water-fowl, particularly the ducks and geese, they are extremely vigilant, ever alert and suspicious of danger, quickly taking wing at such times to escape threatened harm. In their breeding season they limit their movements to localities favorable for nesting and rearing their young. The rank, dense growth of flags and other aquatic grasses, common to the swamp-lakes such as we have described, furnishes the coots and associated species suitable shelter for themselves and their broods, and in the abundance of minute aquatic life, both animal and vegetable, they find a convenient and well-stocked larder.

The coots are found throughout the whole of North America, and in tropical America to northern South America, the Bermudas, and West Indies. The birds which spend the summer in the northern and middle portions of their habitat migrate toward the south in the fall, wintering in the southern States and in the lower portions of their extensive range. They are said to be less common along the Atlantic coast above the southern States, but are found locally everywhere in the limits described. Their chief breeding grounds are in the southern British Provinces and northern United States. They are comparatively hardy, and make their appearance soon after the breaking of winter, following the heavy migrations of other water-fowl, their feebler powers of sustained flight causing them to journey more slowly than most of the ducks, which are well known to be strong flyers.

The first coots are generally seen when the regular migration of the water-fowl is at its height. They appear in the overflowed regions near their summer home soon after the middle of March, their numbers being steadily increased until the middle of April. Their fondness for companionship manifests itself during the migration and after they reach the end of their journey; for the coots on any particular body of water mostly feed together and

sport over its surface in company, discovering a buoyant nature when not suspicious of observation. They resort chiefly to the margins of the open water, perhaps wishing to have the friendly covert of the growing flags at hand in case of need. In their migrations the mud-hens are greatly harassed by the bald eagle, duck hawk, and other rapacious birds; and out on the open water farther from the protecting reeds they have slighter chance of escaping the terrific swoop of their enemy.

When the water recedes in ordinary manner after the spring overflow so common in the swamp-lakes, the coots begin to nest comparatively early, generally having their nests made by the last of April, and their full complement of eggs by the middle of May. I have frequently found before the middle of May sets of eleven eggs almost ready to hatch. Reckoning eight days for incubation advanced, and one day for each egg deposited, we have nineteen days; counting backward nineteen days from the middle of May, we find that the female began laying in the last week of April, and nidification probably began in the third week of the month. In Mr. Nelson's list of birds of Cook and adjacent counties, the note concerning the coot, quoted in *Natural History Survey of Illinois*, Vol. II., page 85, says that they arrive at the end of April, and remain until the end of November; but the coots should make their appearance earlier in the northern portion of our State, since they begin to nest in Fulton County late in April in ordinary seasons. If the water overflowing the river bottoms is slower in receding, the coots nest toward the outer areas of the swamps, where the water soonest becomes shallower and where the flags first appear at the proper height, "just above knee-high," as an inhabitant of the bottom regions told me should be the height of the flags when the birds begin to nest. When the swamp varies from two and three feet of water in the open area to soft mud and dry ground at the outer margin of the flags, the nests may be placed anywhere within the inner two-thirds of the reedy fringing zone, though they increase in number toward the deeper water. I never found a nest in the open water, but I have found them on the dry area, always among the flags.

The nest is commenced by breaking down or biting off the flags in the spot selected, usually in the midst of a thick tuft of grass, which will serve as a basis for the structure. Upon the tuft selected, old coarse rushes and flag stems are piled until the nest is nearly of the required height and size, and it is finished with smaller pieces of soft dried flags. Most of the nests have an oblique approach, made of coarse dried stems bent down, extending from the top of the nest to the surface of the water. The nest is always exposed above, but is generally well surrounded by the adjacent upright stems. It is sometimes described as floating, but all that I have examined, situated in deep water, were built on flag stems bent over as a basis, and hence they could not sink, though they might rise with a sudden advance of the water.

A typical nest is from seven to nine inches high above the water, and eight to ten inches across the top. The cavity is from six to eight inches in diameter at the top, and from two to three inches deep. When there is an approach to the nest it varies in length from twelve to eighteen inches. Complete sets consist of eight to eleven eggs, and the average is ten or eleven, for other observers report even larger sets. They generally have an ashy-gray or a dark-clay ground, frequently appearing pale cream white in the nest exposed to the sun, as most of the nests are, and they are somewhat thickly and uniformly marked with small specks of blackish brown. While they resemble the eggs of the gallinule in shape, they are quite different in general style of color and markings, the eggs of the Florida gallinule having a much lighter ground of dingy cream, and the markings are larger and less regular, some of the spots being bold blotches of light reddish brown, and there are generally deeper markings of light purple and pale lilac. Most of the eggs of the coot measure between 1.90 and 2.00 inches in length, and between 1.28 and 1.40 in width, the average being somewhat smaller than the eggs of the Florida gallinule.

If we wish to see the coots at their best, we should visit the swamp-lakes about the middle of May, when the water is at ordinary height in the swampy regions. Hav-

ing left the bank of the river and threaded the growth of willows, we reach the "buckbrush," among which the flags appear. Pushing our way through the tangled stems and branches of the intervening brush, we see the great area of green before us, and we are soon in the rank vegetation. Around us and from almost under our feet arises a curious medley of strange, uncouth sounds, cackling, squawking, groaning, singing, and splashing, though few birds are in sight. Before the close of our visit we shall learn something of the vigilance of these birds in their resorts, for they are rarely surprised on the nest, and are as rarely seen in its neighborhood.

As we approach the open area we can see the coots among the lily pads, feeding in social fellowship, and apparently enjoying the society of their companions. Having startled them by our approach, we must secrete ourselves in the border of the flags if we wish an opportunity to observe them, for they are likely to recede as we advance. Occasionally one will take flight from the water, by running or skimming over the surface with flapping, whirring wings and rapidly patting feet, splashing the water at every stroke of its large feet, thus gradually rising into the air. Their habit of running over the water has caused them to be called "splatterers" by some sportsmen and hunters. Dr. Coues tells us that in some parts of the Northwest they are called "shufflers" or "flusterers," certainly very appropriate nicknames. They do not fly far at a time at this season, but when well in the air their movements are easy and swift, not unlike those of the wild ducks, though for a short distance after rising above the water they keep up the patting movement of the feet. In alighting they erect the body almost vertically in the air, stopping their progress by the resistance of the body and the surface of their flapping wings.

The coots are numerous in the flags around us, and as the commotion consequent upon our arrival has now subsided, we can hear them splashing in the water as they leave their nests. The birds can step from their habitations into the water and swim directly into the open area; and along the edges of the flags individuals appear, coming

from their duties of incubation and ignorant of our presence. Frequently one will chase another with dignified ardor, skimming over the water with light, graceful movements, slightly nodding the head when in easy motion, though at times of greater animation they extend the head and neck forward at full length. We seldom see them dive, for they take most of their food from the surface of the water and from the floating vegetation. However, when occasion demands it, they can dive easily, though it is chiefly when winged and unable to fly that they manifest this power. It is said that they sometimes dive in their efforts to elude the swift descents of rapacious birds.

They are not rapid swimmers, but sit buoyantly with the body well out of the water, and glide along as easily and adroitly as ducks. From their prevailing dark hue when seen at a distance, and also from their facility in aquatic movements, they are styled "crow ducks" in some localities. Like the grebes, in their vigilance they frequently turn the head from side to side to glance over their surroundings. They are less noisy than the gallinules, and we seldom hear them utter anything except a sort of "cluck," frequently used as they follow one another over the water, and also as a note of alarm. The most of the noises of the swamp are made by the gallinules and rails.

Wishing to procure a specimen for closer examination, our companion, who always carries a gun when he goes hunting, is soon afforded an opportunity. At the first shot the birds near the border scatter like a bevy of quail, hurrying away with patting, spluttering feet and whirring wings, though only a few of them rise so that their feet do not touch the water. They alight several hundred feet away, and swim yet farther off, turning their heads sidewise to watch for pursuers. Our specimen is about the size of a chicken two-thirds grown, and its prevailing color is a dark slate. The legs are yellowish green, and the iris, already fading, is bright crimson. We are especially interested in the structure of the feet, for they are not webbed like those of a duck, but the toes have deeply scalloped or lobed membranes, not united, which

admit of a distinct movement to each toe and yet adapt the foot to swimming. By this arrangement the birds can perch on the reed stems, and it is said that they can sprint rapidly on land. I have seen them run over the floating vegetation and convenient lily pads in their resorts. Examining our specimen further, we note the milky whiteness of the bill and its strong contrast to the dark background of the head and other parts. The upper mandible has a projecting base upon the forepart of the head, of the same structure as the bill, forming a frontal plate or shield characteristic of the coots and gallinules. Like the grebes, the coots have a mere tuft of short feathers for a tail, and short wings, though they fly much better and with less reluctance than the grebes.

After the nesting period, which extends through June and sometimes even into July, the birds congregate more in the open areas, resorting less to their reedy coverts. After they lead their younglings from the browned and bent tangle of stems, they rarely return to them except to shelter their brood at night in their infant weakness. The young, like ducks, are able to swim as soon as they are hatched, and have no further use for the nest. It is an interesting and pretty sight to watch a mother followed upon the open water by ten or a dozen little coal-black forms, gayly decked with orange-red and white about the head and upper parts. The downy little creatures glide over the smooth water as lightly as the proud, anxious mother ahead of them. If they linger in childish assumption or playfully to try their powers, she anxiously turns and waits for them to gain her side before continuing her course.

The swamp-lakes frequently become dry before the close of summer, and then the coots are compelled to seek their food elsewhere, generally along the margins of the rivers; and they are said to feed sometimes on land, either by night or day. The surface of the water in the swamp-lakes is rich in minute animal life suited to the needs of the coots, and the vegetable life is no less varied and abundant. The birds pick up floating snails and various species of aquatic insects, as well as young frogs in different stages, worms, and other low forms of life

found in the shallow water. They feed with relish on the seeds, succulent stems, and tender portions of the water plants, the bitten ends of the tender bases of the stems lying about their feeding places making evident their tastes. Young minnows have been found in their stomachs, and along with other matters, small pebbles and sand, the latter materials probably assisting in the comminution of the food.

As the season advances the coots congregate in larger companies, remaining in the swamp-lakes when practicable, or along the margins of the rivers, until the frosty nights of October and early November. They time their departure with the flocks of water-fowl retiring before the advance of winter, and few are seen in this section after the middle of November or earlier severe weather. They are said to gather upon the secluded lakes, bayous, and inlets of the southern Gulf regions in great numbers, but many of them continue their journey farther south.

LEAST BITTERN.

A strange, peculiar hermit of the swamps is the least bittern, our smallest representative of the heron family. Its reclusive life invests it with additional interest to the bird-seeker, though its solitary turn and partially nocturnal habits hinder the general observer from becoming intimate with it. It rarely reveals its presence to the visitor in the swamps of its own accord, and unlike its larger relative, it has no well-known notes which guide the observer in his quest; hence he who would see something of this bird recluse must keep eyes open for all traces of the secluded, silent creature. It is probably the least known of its family, for it knows how to evade the inquisitive intruders in its tangled fens, and times its comings and goings so well that it is generally overlooked even where it is tolerably common. In "Natural History Survey of Illinois," Vol. II, Mr. Robert Ridgway thus speaks of it: "The least bittern, although comparatively seldom seen, is an abundant summer resident in marshy localities throughout Illinois, but keeps well hidden among the tall sedges,

cat-tails, and other aquatic plants among which it dwells, often permitting itself to be almost brushed against before it will take wing."

The habitat of the least bittern is almost co-extensive with that of the Florida gallinule, as it is found throughout the whole of temperate North America, north to the British Provinces, south to the West Indies, and through middle America to Brazil. The first migrant bitterns reach the swamps of central Illinois toward the end of April, and their numbers gradually increase until early in May. As the bird-seeker makes his progress through their resorts soon after they are established, he can flush them from their coverts generally when within twenty feet of them. They arise from the short flags with labored movements in unsteady flight, with the jerky carriage peculiar to the short flight of the herons, as their long neck and legs and their lack of a strong tail to guide their flight make their first movements in air unsteady and of varying direction. They usually fly in a straight course or in a slight arc, preparing for aerial progress by extending the legs backward and crouching the neck back over the body; they point the bill forward, and move with strong, steady, rather rapid flappings, dropping abruptly at the end of their course like rails, or like the grasshopper sparrow. Very early in the morning, and especially toward evening, they are thus easily flushed from the flags. As night comes on they can be seen flying from one part of the swamp to another, evidently seeking their feeding grounds, for they seem to be chiefly nocturnal in their habits, or at least crepuscular, like the bats.

If we are careful in our movements, and conceal ourselves where the birds are flushed most frequently, we may be so fortunate as to see something of their movements. We may see one now and then walking over the broad, circular leaves of the lilies, advancing with buoyant step and the contemplative air characteristic of the family, thrusting forward its long bill with every impulse of its thin, fragile body. While among the lilies, it often examines the culms of adjacent sedges, glancing leisurely up one side of the blade and then up the other, frequently finding some tidbit. At other times it extends its head

forward and downward among the lower vegetation. Sometimes it thrusts its sharp bill into the water, seemingly to seize one of the small minnows swarming below. Its adaptation to its tangled surroundings is exhibited by its facility in passing over and among the stems. At times we can see one of them climb partially up the culms of the sedges, and clinging to the stems with all the agility of the marsh wrens as it extends upward its long neck in its quest for food.

As the least bittern is apparently in no hurry when thus engaged, we can observe the most noticeable features of its structure and plumage, for its colors are bold and striking, attracting attention at some distance. Its relationship to the herons is shown in the outline of the long, sharp bill, the S-shaped neck, thin, diminutive body, and long legs, all of which features fit it admirably to its swampy environments. Its elongate, flexible neck enables it to reach out for food where the reeds obstruct its passage, and the almost nominal weight of its body admits the bird to mount nearly to the top of the bending flags. Its length of bill enables the bittern to take food partially submerged, and its long legs give it greater facility of movement when it chooses to wade in the shallow water in search of minnows and other aquatic food. Its bright colors make it really handsome, but when seen in its natural environments of dark, moss-grown water, brownish-yellow, dried reed stems, and bright-green vegetation, its colors become a mimicry which renders it almost safe from discovery, with its leisurely movements and habits of seclusion. We note the dark glossy green of its entire upper parts, the pale buff of the lower parts, the yellowish-green feet, and the various ornamental patches of cinnamon, buff, and orange. In size it is somewhat smaller than the common green heron, or "fly-up-the-creek," which it resembles somewhat in movements and superficial appearance.

The nesting habits of the bittern are doubtless better known than the private life of the bird, as this is the rule in our general knowledge of bird-life. In ordinary seasons the least bitterns begin to nest about the middle of May. They are apparently rather capricious about their nidifi-

cation; I have visited their resorts in May at various times and failed to find them nesting in that month, and even in the early part of June, and again I have found their nests soon after the middle of May. Like most of the swamp birds, they do not in general begin to nest until the water has subsided to its ordinary level, usually waiting for signs that the water is receding permanently, though they are frequently deceived and lose their habitations by late freshets. They choose sites among the flags in the inner part of the fringing growth, where the water is deepest. I have never found their nests in the shallow parts of the swamps. The foundation of the nest is a thin tuft of flags. Between the upright culms short pieces of dried stems are piled, the base of the accumulated material being in most instances above the water. The mass is generally held in place by the inward pressure of the culms, and is usually somewhat protected laterally by the surrounding stems, frequently above by the drooping tops of the flags. The nest is a substantial platform, with a slight cavity, in most instances standing from six to ten inches above the water, and over six inches in average width across the top. Sometimes a nest is more hastily made, the pile of material being only three or four inches thick, and fastened to the stems by entwining the soft dried pieces about the upright supports.

Mr. Nelson "always found its nest supported at from two to three feet above the water;" but in the swamps where my notes were taken the birds nest lower, as I measured the height of every nest I examined, and found none as high as two feet above the water. The usual complement is four eggs. Frequently sets of five are found, and many nests contain only three eggs, the smaller complements being found in late nests. In rare instances sets of six eggs are found. The eggs are pale greenish blue, or greenish white, rather elliptical in outline. They have a close resemblance to the eggs of the yellow-billed cuckoo, yet have a lighter tint. They are a trifle over 1.20 inches in length and about .95 in width.

The least bittern sometimes reveals the site of its nest by flying from it at the approach of an intruder. According to my observations of its habits, it leaves the nest

oftener than it remains. The male takes his turn in brooding the eggs, and displays his interest in the household by remaining on the nest sometimes until he is lifted from the eggs. When surprised on the nest, the incubating bird will almost invariably protrude its bill upward, in the vertical posture so common to the larger bittern, though it is not so pugnacious, and discovers no disposition to defend its home. At other times when the nest is approached, the bird will slink from its habitation and attempt to elude the notice of the intruder by climbing down among the adjacent stems.

Whatever its movements, and some of them indicate a low degree of instinct, the bittern makes no noise. In my observations of its habits I have never heard an individual utter a call or cry of any kind, though I have listened intently for it, and advised my companions to listen for any of its utterances.

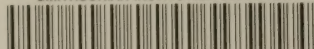
Dr. A. C. Murchison, who has observed the habits of the least bittern in our Illinois swamps, says: "I have never heard one make any sound, and men who have lived in the swamps all their lives say it makes no call whatever." Dr. Morris Gibbs, another accurate observer of bird-ways, says that so far as he knows the least bittern is silent and has not been known to utter a sound, even when captured. Thomas McIlwraith asserts that when disturbed it rises without note or noise of any kind. The foregoing is negative testimony of the bittern in its resorts. On the other hand, Dr. Coues quotes from Audubon, in "Birds of the Northwest," that "when startled from the nest the old birds emit a few notes resembling the syllable *qua*," and other writers who refer to the notes of this bittern, doubtless base their knowledge upon this assertion of the great naturalist. The weight of testimony from the later observers is of negative character, yet more extensive knowledge of the life of the bittern may prove the affirmative side of the question. This bird would seem even more peculiar if it has no oral means of communication with its fellows, no power of expressing its emotions audibly, whether they be intense or limited in degree.

The latter days of the summer are spent by the least

bitterns in even greater retirement than that which characterized their mating and nesting season. The chief incentives to animation are gone. Their younglings have become independent and are scattered over the reedy area in quest of food supplies. The lily pads over which they stepped so lightly in the earlier days have become ragged and brown, and the snowy petals and golden stamens of the blossoms long ago ceased to attract their insect prey. The clear waters in which their handsome colors were imaged in the springtime have become green with moss and foul with the decaying vegetation of the summer. The flags have changed their vernal robes of living green into garbs of somber brown, and have become bent and tangled and matted. These are the "melancholy days" for the birds of the swamp-lake. Is it a matter of wonder that uneasiness fills the minds of the birds of passage at the approach of colder weather? Early in September the bitterns leave their resorts, and by the end of the month they have disappeared from the locality, maintaining to the last their usual silence, yet even in their seclusion having given additional interest to the bird-life of the swamp-lakes.

[THE END.]

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